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ABSTRACT

A large amount of research has been done in the past few decades to pinpoint the effects of test anxiety on the performance of those taking tests. Much of that research is listed in this bibliography, which originated with a computer search of the Educational Resources Information Center (ERIC) data base, Psychological Abstracts, Comprehensive Dissertation Abstracts, Sociological Abstracts, Exceptional Child Education Abstracts, and the National Technical Information Service data base. The bibliography is organized in two sections; the first includes the most recent citations, each with an abstract of the research. The second section lists only the citations for work that was done before 1970. Both sections are indexed with ERIC descriptors. An appendix lists and describes several of the more commonly used measures of test anxiety. Relevant citations for each test are also included. (BW)

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ERIC/TM Report 64

TEST ANXIETY

An Extensive Bibliography

by Barbara M. Wildemuth

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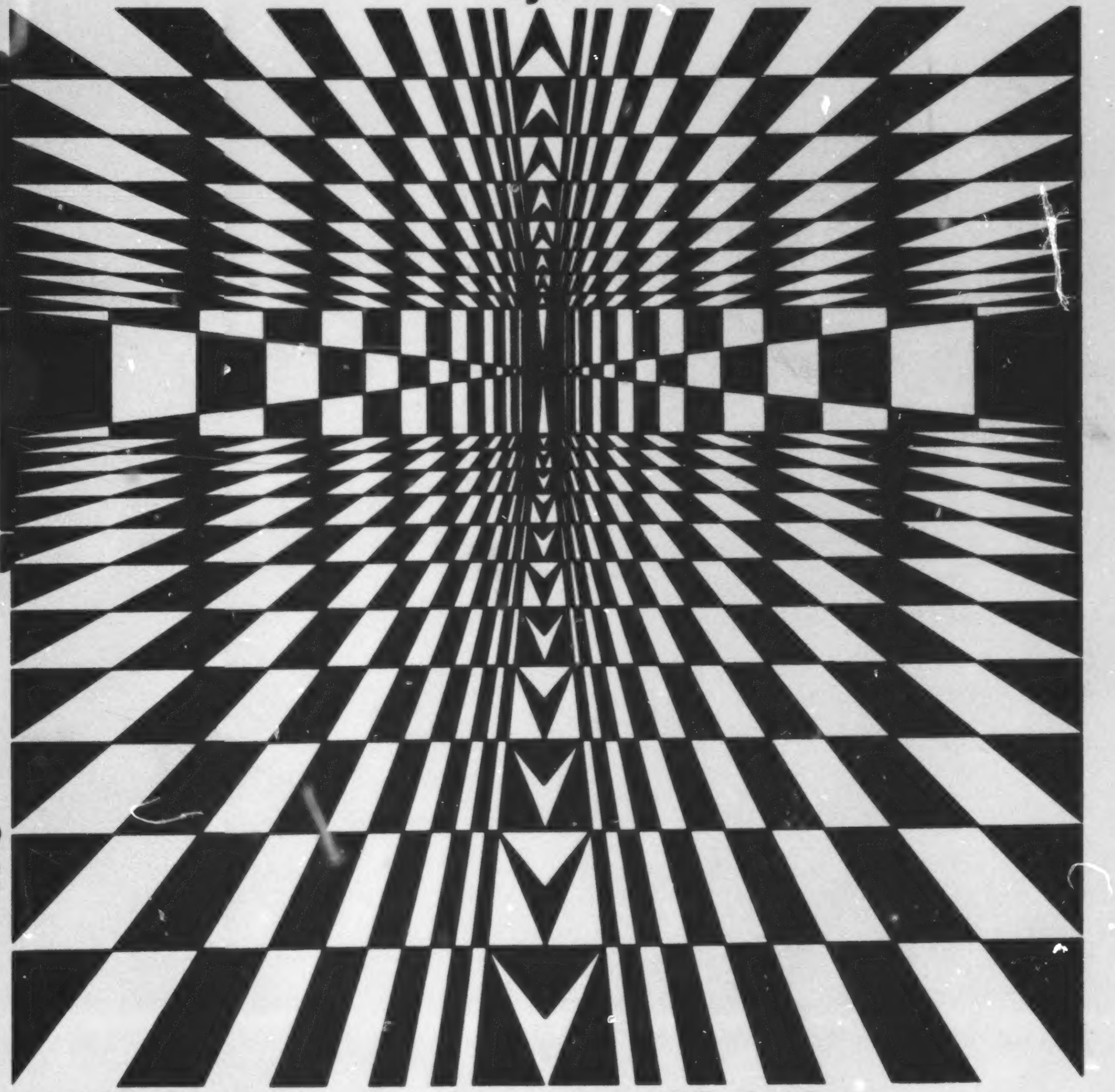

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ERIC Clearinghouse on Tests, Measurement & Evaluation

TEST ANXIETY

AN EXTENSIVE BIBLIOGRAPHY

Compiled by

Barbara Wildemuth

TM Report 64

December 1977

ERIC CLEARINGHOUSE ON TESTS, MEASUREMENT, AND EVALUATION
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INTRODUCTION

Many critical decisions in a person's lifetime are made on the basis of test results--placement in advanced or remedial classes, admission to college, or eligibility for a job, for example, and some people experience test anxiety as a result of the importance placed on performance in a testing situation. For more than two decades, psychologists have been studying test anxiety to discover its effect on performance. In 1952, Mandler and S. Sarason (101B) began to investigate test anxiety as a specific type of anxiety, and developed a self-report questionnaire to measure it. Using the questionnaire to identify high test-anxious students, they began to investigate the differences in performance levels that correlated with differences in anxiety levels. They found that highly anxious students performed poorly on intelligence tests when compared with low-anxious students, and that the performance of high-anxious students was lowest when tests were administered under stressful, ego-involving conditions (157B). This poor performance was explained by the delineation of two types of learned drives that were evoked in the testing situation. The first type, task drive, stimulates task-relevant responses, and leads to high performance. The second type, anxiety drive, stimulates both relevant and irrelevant responses, and usually leads to a lowering of performance level.

Later, Doris and Sarason (43B, 44B, 45B) investigated the possibility that self-blame was responsible for poor performance levels among high test-anxious students. The results of their investigations were interpreted as indicating that, although test anxiety and self-blame are related in a failure situation, the relationship may be shown to exist independently of a specifically induced failure. These results provide evidence that the irrelevant responses evoked by a learned anxiety drive are frequently negative, self-centered responses to the threat associated with an evaluative situation.

In further attempts to determine the effect of test anxiety on performance, Alpert and Haber (3B) attempted to separate the facilitating effects of test anxiety (task-relevant responses) from its debilitating effects. Finding that Mandler and Sarason's Test Anxiety Questionnaire failed to consider the facilitating and debilitating effects of test anxiety separately, they developed the Achievement Anxiety Test, consisting of two independent scales. These scales attempt to distinguish those students for whom test anxiety is a handicap from those who are aided by it. Recognition of the facilitating effects of test anxiety also helped explain the conflicting results of studies of test anxiety, some of which found little or no lowering of performance levels among high test anxious subjects.

A more recent theory of test anxiety, developed by Liebert and Morris (97B, 117B, 118B, 181B) after a factor analysis of the Test Anxiety Questionaire, suggests that test anxiety is composed of two factors: worry and emotionality. Worry is defined as a cognitive concern for one's performance, while emotionality involves automatic reaction to the stresses of an evaluative situation. Their research suggests that emotionality does not interfere with one's performance, but worry does cause task-irrelevant responses, and hence, the lowering of performance levels.

Simutaneously, Spielberger (182B) developed a theory of trait and state anxiety. Trait anxiety is described as a relatively stable personality characteristic, a tendency toward reacting with anxiety to a variety of stimulus situations. State anxiety is transitory, and tends to fluctuate in response to different stimuli. Since test anxiety is evoked in an evaluation situation, it was at first assumed that it was an anxiety state, influenced by emotional reactions which result in task-irrelevant responses. After further research, both Spielberger and I.G. Sarason (150A) concluded that test anxiety is a form of trait anxiety. Differing from Liebert and Morris, they identify emotionality as the main interfering component of test anxiety.

I.G. Sarason (150A) has recently identified several sets of conditions that have been studied in relation to the effect of test anxiety on performance. In many studies, achievement-orienting instructions were administered prior to the task, stressing the evaluative aspects of the situation; or more reassurring instructions were administered, in hopes of lowering the subject's anxiety level. The characteristics of the task itself, such as the level of difficulty, may affect not only the subject's performance level, but also his or her anxiety level. Limiting the time available and reporting past failure have also been used to heighten the subject's anxiety level. Several studies (149B, 150B, 152B) suggest that test anxiety may also be related to self concept, since the high test anxious person is also more self-centered and more self-critical.

An attentional interpretation of test anxiety has recently been suggested by Wine (199A). She theorizes that high test anxious people divide their attention between the demands of task-relevant and task-irrelevant cognitive activities, such as worry and self-criticism. This theory is consistent with the work of

Liebert and Morris, who claim that task-irrelevant responses causing low performance are related to the cognitive process of worry; and with I.G. Sarason's findings about the relationship between test anxiety and self-consciousness.

A large amount of research has been done in the past few decades to try to pinpoint the effects of test anxiety on the performance of those taking tests. Much of that research is listed in the bibliography, which originated with a computer search of the Educational Resources Information Center (ERIC) data base, Psychological Abstracts, Comprehensive Dissertation Abstracts, Sociological Abstracts, Exceptional Child Education Abstracts, and the National Technical Information Service (NTIS) data base. ERIC documents (those cited with ED numbers) can be viewed at any of the 625 institutions housing the ERIC microfiche collection. They can also be ordered in microfiche or hard copy from the ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210. Those dissertations available from University Microfilms International are listed with their UMI order numbers. Orders should be sent to University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. Other dissertations, books, and journal articles may be located in many libraries throughout the United States.

How the Bibliography is Organized

The bibliography is organized in two sections. The first section (1A to 206A) includes the most recent citations, each with an abstract of the research reported. The second section (1B to 205B) lists only the citations for work that was done before 1970. Both sections are indexed with ERIC descriptors. An appendix is included, which lists and describes several of the more commonly used measures of test anxiety. Relevant citations for each test are also included.

BIBLIOGRAPHY

Recent Citations

1A. Adams, Jack, and Creamer, Lyle R. Cross-Modal Measurement of Test Anxiety. Psychological Reports, Vol. 35, No. 1, Pt. 2, pages 471-477, August 1974.

This study attempted to measure test anxiety by an indirect method. Forty college students were asked to match intensities of a 100Hz tone to subjective levels of experienced anxiety under two conditions: on a day just prior to taking a routine college course examination and on a day when no course examinations were scheduled. In addition, subjects were asked to complete the Affect Adjective Check List (AACL) which permitted a self-description of the degree of anxiety felt under the two conditions. Results indicate that both the cross-modal matching technique and the AACL differentiated between test and control days. These findings suggest that subjects were indeed capable of matching the relative changes in the level of experienced test anxiety with changes in the amplitude of an auditory stimulus.

2A. Adest, Rhonda Marsha. The Effects of Examiner Race and Sex and Anxiety upon Test Results among White School Children in a Group Test-taking Situation. Ed.D. dissertation, Boston University School of Education, 1974. (UMI Order No. 74-20,413, 147 pages.)

The purpose of this study was to determine the effects of examiner race and sex upon the achievement performance of white children with differing levels of anxiety. Eight chief examiners (two black males, two black females, two white males, and two white females) were randomly assigned to 16 fourth, fifth and sixth grade classrooms in a segregated white school. The Test Anxiety Scale for Children (TASC) was administered by white examiners. On a separate day the Palmar Skin Sweat Test (pre- and posttests) was administered by white assistant examiners and the Comprehensive Test of Basic Skills (CTBS) Reading Comprehension and Arithmetic Computation subtests, were administered by the chief examiners to a total of 347 children. The Palmar Skin Sweat Test yielded a skewed distribution which suggested very low anxiety for the majority of the sample. The inferences of the Palmar Skin Sweat Test distribution in relation to the results yielded by the TASC suggested that since all subjects achieved better with black examiners, the black examiner could possibly have induced enough anxiety to prove motivational in nature. A discussion of the results suggested that the TASC may not have measured a single dimension of anxiety but tapped a broader personality function.

3A. Allen, George J., and others. Locus of Control, Test Anxiety, and Student Performance in a Personalized Instruction Course. Journal of Educational Psychology, Vol. 66, No. 6, pages 968-973, December 1974.

The experimenters studied the effects of locus of control and trait and state test anxiety on final grades, short answer and essay examination performances, and other academic outcomes obtained from 51 females and 37 males enrolled in a Keller-type "personalized instruction" class. The course format emphasized student control over the rate at which participants mastered self-selected areas of instructional material through proctored oral examinations. Locus of control and trait anxiety were assessed during the first class, while state anxiety was measured immediately before every oral examination. Results indicate that students

possessing an external locus of control contracted for an ultimately earned lower grades, began working more slowly, reported more state anxiety during oral assessments, and performed more poorly on a written final examination than their more internally oriented peers. Trait test anxiety was not reliably related to the academic outcome measures. However, a steady and significant reduction in self-reported state anxiety during oral examinations throughout the semester was found. Suggestions for "tailoring" course formats to specific student characteristics so as to improve academic performance were discussed.

4A. Allen, George J., and others. Study Behaviors and their Relationships to Test Anxiety and Academic Performance. Psychological Reports, Vol. 30, No. 2, pages 407-410, April 1972.

Multivariate regression analysis of academic aptitude, four anxiety tests, and self-report study data indicated high school rank to be the best predictor of grade point average. The number of days subjects reported studying and the Achievement Anxiety Scale also added significantly to the prediction. Analysis of the study-relevant variables across the semester indicated that differential patterns of study existed for subjects with good, average, and poor grades. The relative independence of test anxiety and study behaviors suggest that the latter class of variables might profitably be used to increase prediction of academic performance.

5A. Allison, Donald E. Test Anxiety, Stress, and Intelligence-Test Performance. Canadian Journal of Behavioural Science, Vol. 2, No. 1, pages 26-37, January 1970.

The Test Anxiety Scale for Children and the Children's Manifest Anxiety Scale were administered to 332 sixth graders. Later, subjects were given an intelligence test under a number of experimental conditions designed to induce varying amounts of stress. Results were analyzed by means of 2 (anxiety) x 5 (experimental conditions) x 2 (sex) analyses of covariance, subjects having been classified as high or low anxious on the basis of their anxiety-scale scores. These analyses revealed that none of the effects of the main independent variables or of their interactions were significant. Results do not support either of the hypotheses: that high-anxious subjects will be more adversely affected by stress; and that test anxiety is more directly related to test performance than is general anxiety.

6A. Baker, Cecile Culp. Sex Differences in Achievement-Related Behaviors in Upper Elementary School Children. Ph.D. dissertation, Florida State University, 1973. (UMI Order No. 73-25,112, 105 pages.)

The purpose of the present study was to avoid the limitations of prior studies while examining sex differences in achievement-related behaviors. These were achievement motivation, choice of academic tasks, personal estimates of academic achievement, test anxiety, and general anxiety. Subjects were obtained by a random sampling of elementary classrooms from the St. Vrain Valley Public School District in Longmont, Colorado. It was concluded that the girls in the study were more autonomously achievement motivated; that is, girls were more likely to evaluate their own standards rather than standards set by others. Girls also reported more test anxiety and general anxiety. This seems to imply that girls are not only more anxious about school testing situations but also more anxious about a variety of situations.

7A. Barabasz, Arreed F. Galvanic Skin Response and Test Anxiety among Negroes and Caucasians. Child Study Journal, Vol. 1, No. 1, pages 33-35, Fall 1970.

It was determined whether or not Negroes differ from Caucasians in test anxiety on the basis of an autonomic criterion (galvanic skin response) rather than written anxiety test scores. Nineteen Negro and twenty Caucasian fourth and fifth graders were asked to relax and visualize 15 situations, one of which was designed to arouse test anxiety, while the GSRs were monitored. T test results reveal that Negroes were significantly more test anxious than Caucasians. The use of psychotherapeutic techniques to relieve test anxiety on the part of Negroes is discussed.

8A. Bauer, David H. The Effect of Instructions, Anxiety, and Locus of Control on Intelligence Test Scores. Measurement and Evaluation in Guidance, Vol. 8, No. 1, pages 12-19, April 1975. EJ 115 598.

The effects of instructions, anxiety, and locus of control on scores obtained on a group-administered intelligence test were investigated. Fifty-six male and 57 female fifth graders were randomly assigned to three conditions in which they were told that they were taking either an "intelligence," "routine," or "achievement" test. Prior to taking the Kuhlmann-Anderson Test, subjects' level of anxiety and perceived locus of control were assessed by means of the Test Anxiety Scale for Children and the Intellectual Achievement Responsibility Questionnaire, respectively. Results indicate that differences in perceived locus of control were reflected in test scores obtained by males but not in those obtained by females, while differences in anxiety level were reflected by scores of subjects of both sexes. It was also demonstrated that males and females manifesting heightened anxiety and external locus of control scored lower than subjects who were less anxious and more internal. Results suggest that males were more sensitive than females to the differential demands of testing instructions.

9A. Bauer, David Harold. The Effect of Test Instructions, Test Anxiety, Defensiveness, and Confidence in Judgment on Guessing Behavior in Multiple-Choice Test Situations. Ph.D. dissertation, Pennsylvania State University, 1970. (UMI Order No. 71-16,569, 153 pages.)

Differences among individuals in variables that affect amount of guessing were recognized as a source of error on multiple-choice type achievement and aptitude tests. Although some research studied the effect of test instructions and confidence on guessing, none was designed to investigate the degree to which confidence and relevant motivational variables contributed to the variance in guessing under different types of test instructions. This study investigated the relationship between amount of guessing on objective aptitude tests and confidence in judgment, defensiveness, and test anxiety under varied instructions concerning the consequences of guessing.

10A. Bauer, David H. Error Sources in Aptitude and Achievement Scores: A Review and Recommendation. Measurement and Evaluation in Guidance, Vol. 6, No. 1, pages 28-33, April 1973.

This article identifies for the practitioner those qualities in situations and individuals which have been shown to have major effects on performance in testing situations (such as test anxiety and motivation). Recommendations for testing practices are made, and the dangers inherent in acceptance of test results as the sole basis for personnel decisions are pointed out.

11A. Bennett, Charles R., and Entin, Elliott E. The Effects of Test Anxiety Course Importance, and Future Orientation on Persistence and Academic Performance. February 1971. 9 pages. ED 048 344.

The theory of achievement motivation with a modification involving future orientation, was used to predict that: (1) subjects who percieve a course examination to have future implications should perform better than those who do not; (2) highly anxious subjects who perceive the course examination to have future implications should persist longer at the task than low anxious subjects who are also future oriented; and (3) these predicted differences are intensified in the group that perceives the course as important and attenuated in the group that does not. The persistency hypothesis was supported, but the performance hypothesis was not. The third hypothesis was only partially supported.

12A. Benton, Alan A. Reward Allocation Between High and Low Test Anxious Boys. British Journal of Social and Clinical Psychology, Vol. 14, No. 2, pages 131-138, June 1975.

Twenty dyads composed of same- and opposite-type test-anxious nine to twelve-year-old boys (assessed by Sarason's Test Anxiety Scale for Children) were formed, and one randomly determined member in each pair passed an arithmetic test which made toys available for play. Results indicate that (1) high test-anxious passing and failing children preferred an equal allocation solution; (2) allocation based on productivity was most acceptable among the pairs of low test-anxious children; (3) low test-anxious failers rated favorable allocations more acceptable than equalitarian and unfavorable ones when their partner was a high test-anxious passer. Findings are discussed in terms of differences between high and low test-anxious boys in their response to evaluation.

13A. Benton, Alan A. Test Anxiety and the Bargaining Behavior of Preadolescent Males. Journal of Social Psychology, Vol. 96, No. 2, pages 209-219, August 1975.

The bargaining behavior and types of agreements reached on a competitive allocation problem by 32 pairs of high and low test-anxious preadolescent males (Test Anxiety Scale for Children) were examined. Dyads composed of same and opposite type test anxious boys were formed and a randomly determined member in each pair passed an arithmetic test which made toys available for play. It was hypothesized that the dyads composed of two high test-anxious boys would evidence equalitarian tendencies, while those composed of at least one low test-anxious member would relatively quickly agree to an equity distribution. The former prediction was supported. Unexpectedly, however, the dyads with a low test-anxious failer more often agreed to nonequitable rather than equitable divisions and did so after prolonged, competitive negotiations.

14A. Berkeley, Charles S., and Sproule, Charles F. Test Anxiety and Test-Unsophistication: The Effects, the Cures. Public Personnel Management, Vol. 2, No. 1, pages 55-59, January 1973.

A review of the literature on the effects of test anxiety and unsophistication on test performance is presented. Results indicate that test anxious and unsophisticated individuals do not perform up to their capacity on tests of intelligence, achievement, aptitude and short-term memory. Some proposed reasons for test anxiety and unsophistication are considered. Research on the effects of practice and coaching on subsequent test performance is noted. It is recommended that public jurisdictions provide practice and coaching materials and personnel in the interest of cultural fairness.

15A. Betz, Nancy E. and Weiss, David J. Psychological Effects of Immediate Knowledge of Results and Adaptive Ability Testing. Research Report 76-4. June 1976. 45 pages. ED 129 863.

The effects of providing immediate knowledge of results (KR) and adaptive testing on test anxiety and test-taking motivation were investigated. Also studied was the accuracy of student perceptions of the difficulty of adaptive and conventional tests administered with or without immediate knowledge of results. Three hundred fifty college students were divided into high- and low-ability groups and randomly assigned to one of four test strategies by KR conditions. The ability level of examinees was found to be related to their reported levels of motivation and to differences in reported motivation under the different testing conditions. These results suggest that adaptive testing creates a psychological environment for testing which is more equivalently motivating for examinees of all ability levels and results in a greater standardization of the test-taking environment than does conventional testing.

16A. Bierden, James E. Behavioral Objectives and Flexible Grouping in Seventh Grade Mathematics. Journal of Research in Mathematics Education, Vol. 1, No. 4, pages 207-217, November 1970.

Changes in mathematical achievement, attitudes towards mathematics, and test anxiety were measured after instituting a classroom management plan. The plan emphasized the use of behavioral objectives during an initial teaching phase and intraclass grouping on the basis of achievment for a second teaching phase.

17A. Biggs, Barbara Ellen. Test Performance in Relation to IQ, Test Anxiety, and Goal Setting. Ph.D. dissertation, University of California, Los Angeles, 1971. (UMI Order No. 71-21,315, 128 pages.)

Studies in the literature concerning academic and intelligence test performance generally relate performance either to antecedent variables such as IQ or test anxiety, or to such mediating variables as instructions or goal setting. The purpose of the present study was to consider the effects of both antecedent and mediating variables on test performance within the confines of a single experiment. An expanded version of the Digit Symbol Test was administered to 96 male high school juniors and seniors, divided into high and low Test Anxiety Questionnaire (TAQ) and IQ groups. Half of each subject group was given a high fictitious norm and instructed to set goals. In both goal-setting and non-goal setting groups, one-third of the subjects were given intelligence-test instructions, one-third persistence-test instructions, and one-third neutral instructions. Although subjects with high TAQ scores did not perform as well as subjects with low TAQ scores, poorer performance was not related to subjects' reported anxiety at the beginning of the test. Ego-involving instructions, particularly persistence-test instructions, were associated with greater anxiety reduction during the course of the test. Further results are discussed.

18A. Bishop, Paul Douglas. Educational Arousal and Direction of Attention in the Task Performance of Test-Anxious Subjects. Ph.D. dissertation, Ohio University, 1972. (UMI Order No. 73-4224, 130 pages.)

The present research was designed to test hypotheses generated by two theories regarding factors involved in test anxiety. Wine's attentional theory led to the prediction that redirecting the attention of test anxious subjects would lead to improved performance. Easterbrook's arousal theory led to the prediction that test anxious subjects would be less affected by peripheral task cues. Contrasting predictions by the two theories were made regarding cue utilization under conditions of "optimal attention." Eighty students from introductory psychology classes served as subjects for the experiment. They were selected on the basis of their scores on the Test Anxiety Scale (upper and lower 15th percentiles) and placed into a high or low test anxiety group. These groups were further subdivided on the basis of training to be received (attentional or self-focusing), resulting in four separate experimental groups. Since attentional training was ineffective and differences in cue utilization were contrary to prediction, neither theory received empirical support.

19A. Blechman, Elaine A., and Nakamura, Charles Y. Mothers' Test Anxiety and Task Selection, and Children's Performance with Mother or a Stranger. Child Development, Vol. 42, No. 4, pages 1109-1118, October 1971.

Some hypotheses were tested concerning interactions of children's performance with test anxiety of the mothers, administration of tasks by mothers or strangers, and sex of the child. Thirty-two mothers of 16 male and 16 female three-to-five-year-olds completed the Mandler and Sarason Test Anxiety Questionnaires. When high-anxious mothers administered tasks to their children, they facilitated the task performance of their daughters but were strongly detrimental to that of their sons; and they predicted the performance of daughters better than that of sons. Low-anxious mothers chose more difficult tasks for sons that for daughters to perform, and facilitated the task performance of sons more than that of daughters. These performance differences did not appear when the tasks were administered by female examiners.

20A. Bloom, Richard. Dimensions of Mental Health in Adolesecent Boys. Journal of Clinical Psychology, Vol. 26, No. 1, pages 35-38, January 1970.

A factor analysis was performed on the responses of a random sample of 2200 adolescent boys to a series of 74 questions dealing with personal distress and adjustment. Eight factors were extracted and identified:

negative affective states, positive self-evaluation, physical correlates of anxiety, test anxiety, alienation from society, aggressive impulses, guilt and general anxiety, and negative self-evaluations. It is suggested that there is difficulty in trying to identify any single factor or combination of factors as an optimal index of adolescent adjustment.

21A. Boor, Myron. Relationship of Test Anxiety and Academic Performance when Controlled for Intelligence. Journal of Clinical Psychology, Vol. 28, No. 2, pages 171-172, April 1972.

Three weeks prior to the end of a grading period, 55 male and 61 female undergraduates were administered the Test Anxiety Scale, the Debilitating Achievement Anxiety Test, the Facilitating Achievement Anxiety Test, and two subtests of the Wechsler Adult Intelligence Scale (WAIS). Examination scores for each subject were obtained and then correlated with the test measures. A number of significant relationships were obtained but when the variance attributable to intelligence was partialed out or when the subjects were divided into groups of relatively homogeneous intelligence levels, none of the test-anxiety measures was significantly related to examination performance.

22A. Bronzaft, Arline L., and Dobrow, Stephen B. Test Anxiety and the Economic Recession. Psychological Reports, Vol. 38, No. 3, Pt. 2, pages 1211-1215, June 1976.

The impact of the present economic recession on attitudes toward school and the relationship of these reactions to test anxiety scores was investigated in 142 students attending a public college and 144 students in a private college. As hypothesized, subjects who reported that economic crisis resulted in increased desire to do well in school had higher facilitating and lower debilitating scores on the Alpert-Haber Achievement Anxiety Test than those subjects who stated that economic recession caused them to worry more about rising educational costs and future job opportunities. Differences between findings for the private and public college are discussed.

23A. Bronzaft, Arline L., and Epstein, Gilda F. Is Test Anxiety Rising? Journal of Psychology, Vol. 85, No. 1, page 1719, September 1973.

Test anxiety scores of 317 undergraduates administered the Alpert-Haber Achievement Anxiety Test at three New York metropolitan colleges were compared with test anxiety scores obtained at these colleges five years earlier. At all three schools mean facilitating test anxiety scores had decreased whereas mean debilitating test anxiety scores had increased. It is suggested that changes in the student populations during the years might account for the changes in test-taking attitudes.

24A. Bronzaft, Arline L., and Epstein, Gilda F. Test Anxiety, Academic Achievement, and the Open Admissions Student. Journal of Social Psychology, Vol. 92, No. 2, pages 321-322, April 1974.

The prediction that among male college students the relationship between test anxiety and college achievement would be greater for socially mobile than for socially stable students was not borne out in this study at Lehman College.

25A. Bronzaft, Arline L., and Epstein, Gilda F. Test Anxiety, Sex and Ordinal Position. Journal of Social Psychology, Vol. 87, No. 1, pages 155-156, June 1972.

The Alpert-Haber Achievement Anxiety Test was administered to 350 male and 358 female college freshmen. Females showed more debilitating and less facilitating test anxiety than males. No relationship between debilitating test anxiety and birth order was found, but the relationship between facilitating test anxiety and birth order approached significance with "oldest" children reporting more facilitating test anxiety than any other group.

26A. Bronzaft, Arline L., and Stuart, Irving R. Test Anxiety, GSR and Academic Achievement. Perceptual and Motor Skills, Vol. 33, No. 2, pages 535-538, October 1971.

The relationship between a self-report measure of test anxiety (the Alpert-Haber Achievement Anxiety Test) and galvanic skin responses (GSRs) recorded during an actual course examination were examined. GSRs were obtained from 57 undergraduates while answering neutral questions and psychology examination questions. Low and high-reactive groups were identified on the basis of GSR responses to the neutral questions. During the actual examination situation, the GSRs of the low-reactive group were raised but still remained small compared with the GSRs of the high-reactive group. In the low-reactive group, subjects high in test anxiety responded with significantly larger GSRs than subjects low in test anxiety.

27A. Bronzaft, Arline L., and others. Test Anxiety among Black College Students: A Cross-Cultural Study. Journal of Negro Education, Vol. 43, No. 2, pages 190-193, Spring 1974.

On the Alpert-Haber Achievement Anxiety Test West Indies black students had significantly higher facilitating test anxiety and significantly lower debilitating test anxiety compared with black students at Lehman College in the United States. Results are explained in terms of cross-cultural differences in attitudes toward testing.

28A. Bronzaft, Arline L., and others. Test Anxiety and Cheating on College Examinations. Psychological Reports, Vol. 32, No. 1, pages 149-150, February 1973.

To determine the relationship between test anxiety and college cheating, 117 undergraduates who had previously completed the Alpert-Haber Achievement Anxiety Test were asked to grade their own classroom examination papers. Although subjects with low grades were more likely to cheat and to have greater debilitating test anxiety, no relationship between cheating and test anxiety was found.

29A. Brown, Marvin. Motivational Correlates of Academic Performance. Psychological Reports, Vol. 34, No. 3, Pt. 1, page 746. June 1974.

A battery of tests such as the Test Anxiety Questionnaire were used to measure the need for achievement, need for social approval, and anxiety in male undergraduates. Correlations between these three motivational variables and high school grades, college grades, and Scholastic Aptitude Test scores were all low; most correlations were near zero.

30A. Brown, Robert Wayne, Jr. The Effects of Test Anxiety Level, Feedback, and Socioeconomic Strata upon Programmed Reading. Ph.D. dissertation, University of Southern California, 1970. (UMI Order No. 71-7703, 97 pages.)

The purpose of this study was to determine the effects of test anxiety level and feedback conditions on programmed instruction for a high and a low socioeconomic strata (SES) group. The subjects were all fifth grade students, one group of 174 high SES and one group of 135 low SES subjects. Ability level, measured by the California Test of Mental Maturity, was kept within the range of 85-120. Random assignment of subjects to experimental groups presumably spread intelligence variance equally among the groups. Warner's Index of Status Characteristics determined SES while Sarason's Test Anxiety Scale for Children determined high and low test anxiety level. High and low test anxiety groups were randomly assigned to feedback and no feedback conditions of the programmed reading. In the classrooms, the subjects read the program titled Earth and Sun relationships. All subjects received a pretest two weeks prior to the treatment and an immediate posttest. The conclusions are as follows: (1) test anxiety level for high SES pupils can affect programmed reading; (2) feedback for high SES pupils does not enhance learning of programmed reading and may, to a small degree, decrease learning; (3) test anxiety level for low SES pupils does not affect programmed reading; (4) feedback for low SES pupils does not enhance learning of programmed reading and may, to a small degree, decrease learning; (5) for both the high and the low SES groups, interaction effect of variance of the dependent variable due to joint effects of both test anxiety level and feedback is insignificant.

31A. Brunza, John Jay. The Effects of Repeated Probabilistic Testing Conditions on State Anxiety and Test Reliability. Ph.D. dissertation, Indiana University, 1973. (UMI Order No. 74-07001, 131 pages.)

Four classroom achievement examinations and two different anxiety questionnaires were administered to 10 sections of an undergraduate course dealing with the methods of teaching language arts and reading. The 10 sections were randomly assigned to probabilistic and traditional examination conditions. Estimates of internal consistency reliability were calculated for each of the four examinations. Results did not support the hypothesis that the probabilistic examinations would be consistently more reliable throughout the entire semester. In three of the four reliability comparisons, the traditional test format was more reliable. It was concluded that there are apparent conceptual differences in the two testing procedures which may account for the significant decrease in anxiety state scores from Examination #1 to Examination #4 under the probabilistic but not the traditional test conditions for the high anxiety-trait students. No significant differential effects of the two test conditions were expected for the low anxiety-trait students. Results supported these expectations.

32A. Bush, Ellen S., and Dweck, Carol S. Reflections on Conceptual Tempo: Relationship Between Cognitive Style and Performance as a Function of Task Characteristics. Developmental Psychology, Vol. 11, No. 5, pages 567-574, September 1975.

Reflectives have been shown to outperform impulsives on tasks that require a cautious, systematic approach. A study was conducted to determine whether reflectives, particularly high-anxious reflectives, would show superior performance on speeded tasks; that is, whether they would exhibit flexibility vs. continued caution at the expense of performance. Forty-six male and 54 female fourth graders selected by their scores on the Test Anxiety Scale for Children and the Lie Scale for Children as being reflective and impulsive, and high- and low-anxious, were presented with speeded tasks of increasing difficulty. Results revealed that,contrary to prediction, high-anxious reflectives performed as well as low-anxious reflectives and both were generally faster and more accurate than impulsives. Only for girls, on the most difficult task,was there evidence that reflection in combination with high anxiety resulted in overly cautious behavior and impaired performance. Results suggested a definition of cognitive style that stresses the strategy used rather than the disposition for long or short decision times. In addition, a model is proposed to predict the relative speed and accuracy of reflectives and impulsives as a function of the strategy required and the degree of intertrial transfer on the task.

33A. Butler, Ralph. Aptitude Test Performance of Negro College Students as Affected by Item Difficulty Sequence, Anxiety Reaction Type, and Sex Differences. Ph.D. dissertation, University of Oklahoma, 1971. (UMI Order No. 72-03379, 108 pages.)

The present investigation was conducted in an attempt to determine the effects of item difficulty sequence, anxiety reaction type, and sex upon verbal and quantitative aptitude test performance of Negro college subjects. Three hundred, third quarter sophomore students, 150 males and 150 females, attending a predominantly Negro college in middle Tennessee during the school year of 1970-71,served as subjects. Because of the nature of the design some of the 300 subjects were not used in the final analysis. The total number of subjects used in the final analysis was 156--78 males and 78 females. Based on the findings in the investigation, the following conclusions were drawn: (1) neither verbal or quantitative aptitude test performance are affected by item difficulty sequencing; (2) verbal aptitude test performance is affected by anxiety reaction types but quantitative test performance is not; (3) sex differences in and of themselves produce no effects upon verbal or quantitative aptitude test performance; (4) item difficulty sequence and sex will interact and produce an effect on verbal aptitude test performance; and (5) item difficulty sequence, anxiety reaction type, and sex will interact and produce an effect on verbal aptitude test performance.

34A. Clark, Newton Cecil. Test Anxiety, Locus of Control, and Feedback in Self-Instruction. Ph.D. dissertation, George Peabody College for Teachers, 1971. (UMI Order No. 71-26,200, 129 pages.)

The present study considered the personality variables of test anxiety and locus of control with two objectives in view. First, evidence was sought for aptitude-treatment interactions in the classroom between these personality variables and the experimental treatments. The second objective was to gather evidence on the convergent-discriminant validity of the anxiety and control variables by using multiple measurement scales.

Six classes of second-year algebra students served as subjects and were given the A-State scale of the State-Trait Anxiety Inventory (under directions to report how they felt just prior to an examination), the Internal-External Scale, the Achievement Anxiety Test, and the Intellectual Achievement Responsibility Scale. The first class period of experimental treatment consisted of 30 minutes of study in a programmed elementary statistics text followed by a 10-minute quiz. Individuals were randomly assigned to three groups recieving an easy quiz, a difficult one, or a choice between forms. At the beginning of the second and last day of treatment, scores on the quizzes were reported to subjects along with the class median. Another study session was then followed by the final achievement test. It was hypothesized that positive feedback from the easy form would benefit high-anxious subjects, while negative feedback from the difficult practice quiz would be associated with higher scores on the final test for the low-anxious subjects. Interaction hypotheses were not supported.

35A. Cohen, Robert Michael. Effects of Feedback on Test Anxiety and Performance as a Function of Certain Personal Characteristics. Ph.D. dissertation, New York University, 1971. (UMI Order No. 72-13,342, 73 pages.)

This study was designed to determine if change in test-retest performance would be negatively correlated with change in test anxiety. It was further hypothesized that self-esteem would be a moderator of the relationship between change in test anxiety and the discrepancy between reported score on a test and the subject's expected score. The results showed that change in test-retest performance was negatively correlated with change in test anxiety. In addition, self-esteem and need achievement had been demonstrated to moderate the relationship between change in test anxiety and change in performance as mediated by the discrepancy between reported score on the first test and the subject's expected score.

36A. Coren, Stanley, and Schulman, Martin A. Effect of an External Stress on Commonality of Verbal Associates. Psychological Reports, Vol. 28, No. 1, pages 328-330, February 1971.

To find the effect of an external stress upon the commonality of verbal association responses, 135 undergraduates were tested under high-test anxiety and 134 under low-test anxiety. The stimuli were 15 words selected from the Palermo and Jenkins word association norms. More common associative responses were emitted by the highly stressed group.

37A. Cotler, Sheldon, and Palmer, Richard J. The Effects of Test Anxiety, Sex of Subject, and Type of Verbal Reinforcement on Maze Performance of Elementary School Children. Journal of Personality, Vol. 38, No. 2, pages 216-234, June 1970.

The purpose of this study was to account for children's performance in an educational setting by evaluating individual difference factors and the subjects' differential responsivities to social reinforcement. Subjects performed on Porteus mazes, which were viewed as complex, stress-inducing tasks. They were differentiated in terms of sex and test anxiety levels. Each subject received the same number of noncontingent reinforcements, which consisted of either verbal praise or verbal criticism or no feedback. The data yielded significant triple interaction effects among anxiety, sex, and social reinforcement for the time and error scores on the mazes.

38A. Cotler, Sheldon, and Palmer, Richard J. Social Reinforcement, Individual Difference Factors, and the Reading Performance of Elementary School Children. Journal of Personality and Social Psychology, Vol. 18, No. 1, pages 97-104, April 1971.

This experiment focused on the relationships among contingent social reinforcement, sex, test anxiety, achievement, and the reading performance of 120 fourth- to sixth-grade children on a series of matched paragraphs. It was hypothesized that the subjects' social reinforcement histories and expectancies for success and failure would mediate their responsiveness to reinforcement and their acquisition of correct reading responses. Results indicate that reinforcement and the individual difference factors significantly interacted to affect reading performance. The performances of boys were more variable and, compared with girls' performances, more highly related to test anxiety and achievement level and significantly more influenced by social reinforcement factors. Girls made significantly fewer errors than boys over trials, with sex differences accentuated by high test anxiety and attenuated by negative reinforcement. It is concluded that elementary-school girls were more task oriented than boys, more inner-directed, and less dependent upon extrinsic motivational factors.

39A. Darley, Susan A., and Katz, Irwin. Heart Rate Changes in Children as a Function of Test Versus Game Instructions and Test Anxiety. Child Development, Vol. 44, No. 4, pages 784-789, December 1973.

Twenty fifth-grade boys were individually given a quantitative estimations task while their cardiac responses were being continuously recorded. In the first part of the task, all subjects received game instructions, and in the second part, half of the subjects received game instructions and half received test instructions. Upon completing the task, subjects filled out the Test Anxiety Scale for Children. It was found that heart rate accelerated after test instructions and decelerated after game instructions. These results augmented the view that heart-rate acceleration following test instructions reflected increased task motivation, and deceleration following game instructions reflected decreased task motivation, or relaxation. In general, the data demonstrated the usefulness of using cardiac indices for studying test behavior and anxiety in children.

40A. De Blassie, Richard R. Test Anxiety: Education's Hang-Up. Clearing House, Vol. 46, No. 9, pages 526-530, May 1972.

A de-emphasis on the use of tests, in and of themselves, will minimize a great deal of the anxiety that typically accompanies the test-taking situation in school children.

41A. De Vito, Anthony Joseph. The Anticipation, Experience, and Recollection of Test Anxiety. Ph.D. dissertation, Fordham University, 1974. (UMI Order No. 74-25,046, 107 pages.)

The study was undertaken to compare actual test anxiety (TA) with imagined TA and recalled TA. The effect of feedback (that is, knowledge of examination performance) on recalled TA was examined. Imagined TA was compared with state anxiety under normal conditions. Imagined TA was found to be higher than actual TA, suggesting that anxiety may have been denied immediately before the examination in order to maximize performance. No difference was found between actual TA and recalled TA before feedback, but while testing this hypothesis, it was found that imagine instructions at first testing resulted in higher state anxiety scores at second testing and that those in the low performance group exhibited the highest state anxiety. Feedback had no effect on the recollection of TA. However, while investigating the effect of feedback, it was found that females had higher recalled TA than males, which may reflect greater cultural acceptance of expression of emotionality in females. Imagined TA was higher than state anxiety under normal conditions.

41A. Doyal, Guy T., and Forsyth, Robert A. The Effect of Test Anxiety, Intelligence, and Sex on Children's Problem Solving Ability. Journal of Experimental Education, Vol. 41, No. 2, pages 23-26, Winter 1972.

The Lorge-Thorndike Intelligence Test, Form I-A, and the Test Anxiety Scale for Children were administered to 37 third graders on the basis of average or superior intelligence. High or low test-anxiety subjects were placed in small groups and under normal and anxiety-provoking instructions, were asked to solve simple and complex problem-solving tasks. Problem-solving ability was measured by an anagram test. Results indicate that the anxiety treatment was not significantly related to level of intelligence. The two-factor design indicated a significant Sex x Anxiety interaction for both simple and complex problem solving.

43A. Doyal, Guy T., and Forsyth, Robert A. The Relationship Between Teacher and Student Anxiety Levels. Psychology in the Schools, Vol. 10, No. 2, pages 231-233, April 1973.

The results of this study suggest the possible influence of teachers' manifest anxiety on their students' test-anxiety levels. Mental health workers in schools should be alert to those circumstances in which high anxiety on the part of teachers may have an undesirable effect on their pupils.

44A. Dusek, Jerome B., and Hill, Kennedy T. Probability Learning as a Function of Sex of the Subject, Test Anxiety, and Percentage of Reinforcement. Developmental Psychology, Vol. 3, No. 2, pages 195-207, September 1970.

Nine- and ten-year old boys (N=40) and girls (N=32) were divided into eight groups according to their level of test anxiety, grade point average, and level of reinforcement (33% vs. 66%) at a three-choice, 120-trial probability-learning task in which only the correct response was reinforced. Dependent variables, including number of correct responses, patterns and three contingence measures, intercorrelated into two clusters: one reflecting a strategy of maximizing reinforcement by concentrating on the correct response, and the other reflecting more complex strategies involving other responses. Consistent, highly significant main-order effects indicated a strong tendency for a maximization strategy to occur more often (a) under 66% than 33% reinforcement, (b) as the task progressed, and (c) for boys and girls. Predicted effects of test anxiety on performance were obtained for girls but not for boys. The unexpected sex differences and overall group learning are related to previous research.

45A. Dusek, Jerome B., and others. Attention, Encoding, and Information Processing in Low- and High-Test-Anxious Children. Child Development, Vol. 47, No. 1, pages 201-207, March 1976.

Differences in the deployment of attention by low test-anxious (LTA) and high test-anxious (HTA) children in a learning task were investigated. Twenty-four males and 24 females at each of three grade levels (2, 4, and 6) were administered the Test Anxiety Scale for Children, the Defensiveness Scale for Children, and the Lie Scale for Children. Subjects participated in an incidental learning task, in which line drawings of familiar animals and household objects were the central and incidental stimuli, respectively. All subjects participated under test instructions. For half the subjects, the central and incidental stimuli were spatially separated on the stimulus cards, and for half they were not. Half the subjects were instructed to overtly label the central stimuli as they were exposed and half were not. Central learning increased with grade level but incidental learning did not. LTA subjects had higher central and lower incidental learning scores than HTA subjects. Those who labeled the central stimuli had higher central and lower incidental learning scores than subjects in the nonlabeling condition. Spatial separation had no effect on central learning but resulted in lower incidental learning than nonseparation. The significant Anxiety Level x Labeling Condition interaction reflected the facilitative effect of overt labeling on the performance of HTA subjects.

46A. Dusek, Jerome B., and others. Information Processing in Low- and High-Test-Anxious Children as a Function of Grade Level and Verbal Labeling. Developmental Psychology, Vol. 11, No. 5, pages 651-652, September 1975.

Attention to task-relevant and task-irrelevant information was compared in high and low test-anxious children. Results indicated that high test-anxious persons divide their attention in evaluative situations. It is suggested that providing them with task-relevant strategies helps them to cope with the negative effects of test anxiety.

47A. Engle, Particia L., and Suppes, Joan S. The Relation Between Human Figure Drawing and Test Anxiety in Children. Journal of Projective Techniques and Personality Assessment, Vol. 34, No. 3, pages 223-231, June 1970.

To assess the validity of the Human-Figure Drawing Projective Test (HFD) as a measure of test anxiety, 27 HFD scoring indices were developed, yielding a total HFD score, cautiousness subscale and poor-planning sub-scale. Fifty-seven girls and 76 boys from grades 5 and 6 each completed four HFD tests, a test-anxiety and defensiveness questionnaire, and a problem-solving task that yielded four behavioral measures. Correlations between all measures of anxiety and IQ were obtained. Total HFD scores were related to self-reported test anxiety, defensiveness, and response latency in problem solving, but individual HFD indices and subscales had little predictive value.

48A. Entwisle, Doris R., and Greenberger, Ellen. Questions About Social Class, Internality-Externality and Test Anxiety. Developmental Psychology, Vol. 7, No. 2, page 218, September 1972.

Several hundred ninth graders were selected from junior high schools. Subjects were ordered according to sex, race (black and white), rural-urban residence, and IQ (high, medium, and low). Subjects completed the Intellectual Achievement Responsiblity Questionnaire and a test anxiety questionnaire. Results indicate that neither anxiety nor locus of control bears a consistent relationship to social class. Findings further indicate that social class or residential locus cannot be considered separately from IQ.

49A. Entwisle, Doris R., and Greenberger, Ellen. A Survey of Cognitive Style in Maryland Ninth Graders: II. Test Anxiety. Report Number 68. May 1970. 45 pages. ED 042 181.

Test anxiety was surveyed among Maryland ninth graders in six schools in the spring of 1968. The schools differed in racial composition, social class of student body, and in rural-urban location. Test anxiety does not show differences by social class or racial groups when schools have comparable IQ distributions. The level of test anxiety seems determined by students' relative level within the ability distribution of their own school, with those low in anxiety, high in the ability-level distribution of the school. Changes in school practices and organizational patterns are suggested to decrease test anxiety.

50A. Feehley, Cornelius J. Test Anxiety, Task Complexity, Cue Position and Evaluative Instructions as They Affect Performance on a Learning Task. Ph.D. dissertation, Catholic University of America, 1970. (UMI Order No. 70-22,724, 74 pages.)

This study was designed to test the contentions of test-anxiety theory and conditions of irrelevant cue placements as another feature. The theoretical positions of drive theory and of Easterbrook's cue selection hypothesis were also necessary sources of the theoretical predictions. Furthermore, the empirical work of Kausler and Trapp was essential in formulating the hypothesis. This was a four factor design with two criterion measures on each of the criteria (relevant task performance and irrelevant task performance). The subjects were assessed on their performance on the relevant task (speed and errors in sorting marbles) and on their performance on the irrelevant task (recall and recognition of irrelevant cues placed within the visual field). Out of the eight hypotheses generated from the theoretical positions and empirical findings, one proved to be significant. The high anxious, low evaluative subjects did better on the irrelevant task than the high anxious, high evaluative subjects when the irrelevant cue was peripherally placed.

51A. Firetto, Anthony C., and Davey, Heather. Subjectively Reported Anxiety as a Discriminator of Digit Span Performance. Psychological Reports, Vol. 28, No. 1, page 98, February 1971.

Two studies have reported that a simple self-report of the presence of anxiety on the Digit Span of the Wechsler Adult Intelligence Scale (WAIS) discriminated performance, whereas ego-involving instructions had no significant effect. The present study was a partial replication of the previous studies in an attempt to generalize the findings. Subjects (20 males and 20 females) selected from an introductory psychology class were randomly assigned to control and experimental groups, and administered the first five verbal subtests of the WAIS. The experimental group had been told that their questionable performance in class tests, hopefully, would be clarified by a brief intelligence test. The control group received only the usual WAIS instructions. After the test, all subjects were asked how they felt during testing. Those who reported being "anxious," "uneasy," "worried," or something equivalent were classified by the authors as "possessing anxiety." The other subjects were classified as having "anxiety absent." The results were in line with the previous studies.

52A. Firetto, Anthony C., and others. Digit Symbol Performance and Self-Report of Anxiety. Perceptual and Motor Skills, Vol. 35, No. 2, page 382, October 1972.

Previous studies indicate that a simple self-report of the presence of anxiety during Wechsler Adult Intelligence Scale (WAIS) testing is related to lowered digit span performance. Similar significant results for all the WAIS Verbal subtests, except Comprehension, have been reported. An attempt was made to generalize these findings to a performance task similar to the digit symbol of the WAIS. Male and female undergraduates were administered the Test Anxiety Questionnaire (TAQ) and individually given in a two-minute time limit a 120-item digit symbol task similar to the WAIS. After completing the task, subjects wrote a brief description of their reaction to the fact that the test was a brief measure of their general intelligence. Results show: (1) no significant difference between the TAQ scores of "anxious" and "non-anxious" subjects; (2) the self-report analysis to be consistent with previous findings; and (3) a significant lowering of performance for subjects reporting anxiety.

53A. Fischer, Donald G., and Awrey, Arlow. Manifest Anxiety, Test Anxiety, and Intelligence in Concept Formation. Journal of Social Psychology, Vol. 89, No. 1, pages 153-154, February 1973.

Seventy-two undergraduates were given a concept-formation task after administration of an intelligence test by Otis and either the Taylor Manifest Anxiety scale or the Test Anxiety Questionnaire (TAQ). Results reveal a significant main effect for intelligence for both the manifest- and the test-anxiety measures, and a significant Intelligence x Test Anxiety interaction effect. Overall, high-intelligence subjects performed significantly better than low-intelligence subjects. When anxiety was measured by the TAQ, there was a significant decrement in performance in the low-intelligence, low anxiety condition compared to the high-intelligence, low-anxiety condition and the low-intelligence, high-anxiety condition.

54A. Fisher, Richard I. Components of a Motive to Succeed. Journal of Experimental Education, Vol. 41, No. 3, pages 17-21, Spring 1973.

A motive to succeed (Ms) is defined in terms of the multiplicative interaction between one's academic self-concept (Sa) and confidence in that self-concept (Sc), i.e., Ms=Sa x Sc. Evidence confirming Ms as a motive to succeed was obtained from 109 undergraduates who completed an academic self-concept scale, grade-utility questionnaire (a measure of academic risk-taking) and Mandler and Cowen's Test Anxiety Questionnaire. Ms correlated significantly with subjects' grade point averages and correlated inversely with test anxiety (a motive to avoid failure). In addition, Sc was related to preference for academic risk taking and was proportional to course examination anxiety.

55A. Forhetz, John Elbert. An Investigation of Test Anxiety as Measured by the TASC in Content Areas Ranked Difficult and Easy with Fourth and Sixth Grade Students. Ph.D. dissertation, Southern Illinois University, 1970. (UMI Order No. 71-09992, 124 pages.)

This present research with test anxiety of school children is concerned with the test anxiety of children in specific content areas which they have ranked as difficult and easy. The TASC. Test Anxiety Scale for Children, an instrument developed by Sarason et al. (1960), and frequently used by researchers to indicate test anxiety, was used as the criterion instrument in this research. Six hundred-six fourth-grade and 685 sixth-grade students ranked four content areas (math, social studies, reading and spelling) according to difficulty. There were 247 in both classes who ranked math as the most difficult and spelling as least difficult. These were chosen as subjects of this investigation because of the high number of students making the choice and the extreme complication of the administration of other content area choices.
Each of these grade levels was divided into two groups--one group to receive the TASC as a pre-test one week before the experiment, without reference to a specific content area test, and the other group to receive the TASC as a posttest one week after the experiment, without reference to a specific content area test. Several significant findings were obtained. Although it was found that there was no significant differences between the correlations of the difficult TASC with the general TASC and the easy TASC with the general TASC, a significant difference between the means of the easy TASC and the difficult TASC was obtained. This finding indicates that the TASC may be used as a measure of specific test anxiety.

56A. Gall, Joyce Persing. Individual Differences in Stress and Coping, and Graduate Examination Performance. Ph.D. dissertation, University of California, Berkeley, 1970. (UMI Order No. 71-776, 81 pages.)

The relationship between threat reactions and performance on a crucial screening examination was studied among 45 male graduate students in economics. The students were required to pass both parts of the examination ("Exam A" and "Exam B") to remain in the graduate program. During the two-month interval between Exam A and Exam B, the students were interviewed individually. During this period they also completed several written, self-assessment scales covering: feelings about Exam B, ways of coping with stressful feelings, examination preparation activities, significance of examination for self-esteem and career plans, dispositional anxiety, and coping dispositions. Most affective measures and one-third of the coping measures correlated significantly with total examination performance (A + B). However, the correlations for the combined score were almost wholly a function of Exam A performance. Correlations between Exam B score and almost all other measures were negligible. Test-specific trait anxiety was more strongly related to examination performance than general trait anxiety. Also, test-specific state anxiety increased as the examination became more imminent, while general state anxiety did not.

57A. Gary, Clifton Farrel. Effect of Unannounced Examinations on Achievement, Test Anxiety, and Attitude in Certain Junior College Mathematics Courses. Ph.D. dissertation, University of Oklahoma, 1973. (UMI Order No. 73-23,938, 101 pages.)

This study investigated the effect of unannounced examinations on achievement, test anxiety, and attitude toward mathematics in four junior college mathematics courses. The courses were: (1) General College Mathematics, (2) Elementary College Algebra, (3) Intermediate College Algebra, and (4) College Algebra. The sample consisted of 164 Oscar Rose Junior College students enrolled in control and experimental sections in each of the four subject areas. The control section received advance notice of their examinations, whereas the dates of the examinations for the experimental section were known only by the teacher. The results suggest that students who are subjected to unannounced examinations achieve more, are not anxious about the examinations, and have a positive attitude toward unannounced examinations.

58A. Gaudry, Eric, and Bradshaw, George D. The Differential Effect of Anxiety on Performance in Progressive and Terminal School Examinations. Australian Journal of Psychology, Vol. 22, No. 1, pages 1-4, April 1970. Reprinted in Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York: Wiley, 1971.

An intelligence test and the Test Anxiety Scale for Children (TASC) were administered to students in 14 secondary classes early in the school year. Marks in mathematics in both progressive and terminal examinations were collected and analyzed as a function of anxiety, intelligence and method of examining. The experimental hypothesis was that high test-anxious subjects would perform relatively better under the less stressful conditions of progressive examining than under terminal examining when compared with low anxious subjects in the same class. The Anxiety X Method-of-Assessment interaction was significant and in the predicted direction. Implications for school examining practices are discussed.

59A. Gaudry, Eric, and Fitzgerald, Donald. Test Anxiety, Intelligence and Academic Achievement. In Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York: Wiley, 1971.

School marks at the half-yearly examination were collected in English, mathematics, history, geography, French, and science. Using a multivariate analysis, the performance of children in 12 seventh-grade classes was examined as a function of anxiety and intelligence. Considerable support was found for the experimental hypothesis that high anxiety would tend to facilitate the performance of the most able children while lowering that of the remainder when compared with their low anxiety counterparts. High anxiety was found to be associated with the greatest performance deficit at the second highest of the five levels of ability. A possible explanation for this result was advanced.

60A. Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York: Wiley, 1971.

Results of research studies of the relationships between anxiety and school attainment and between anxiety and performance with modern techniques of instruction are examined. Four measures of anxiety and some of the questionnaires and tests used to assess anxiety level are discussed and their theoretical bases presented. Separate chapters review personality and behavioral characteristics of the anxious child, anxiety and examining procedures, anxiety and academic achievement, and anxiety and ability grouping. Programmed learning and computer based instruction are said to help lower anxiety levels in academic situations. Results of a study cited indicate that anxiety could facilitate as well as impair achievement while another study failed to distinguish between anxiety as a personality trait and as a transitory emotional state. Approximately half of the document is comprised of 11 selected readings on such topics as relation of anxiety to school record, achievement and behavior, differential effect of anxiety on performance in progressive and terminal school examinations, educational streaming and anxiety, effect of a single experience of success or failure on test anxiety, and effects of state anxiety and task difficulty on computer assisted learning.

61A. Geen, Russell G. Effects of Evaluation Apprehension on Memory over Intervals of Varying Length. Journal of Experimental Psychology, Vol. 102, No. 5, pages 908-910, May 1974.

In a 2 X 2 X 3 factorial design, 240 female subjects studied a paired-associate list for a single trial after being told that it was either a test on intelligence or an evaluation of the list. The subject was either observed or not observed by experimenter during the study trial. Recall was tested after 2, 15, or 45 minutes. Recall was poorer after two minutes for subjects who had been told that their intelligence was being evaluated, but superior after 45 minutes. This finding indicates that evaluation apprehension creates a condition of arousal that facilitates long-term memory but hinders memory over relatively short intervals.

62A. Gjesme, Torgrim. Future-Time Gradients for Performance in Test Anxious Individuals. Perceptual and Motor Skills, Vol. 42, No. 1, pages 235-242, February 1976.

The assumption was tested that highly anxious individuals should have a negative goal gradient for future performance and that this negative goal gradient should be reduced as the test-anxiety (as measured by a Norwegian version of the Test Anxiety Scale for Children) dispositions of the individuals decreased. Results for 392 sixth-graders show, as expected, that (1) subjects in the very high-anxiety group tended to decrease the number of problems solved correctly as a future goal (task) approached in time and (2) the slopes of the negative goal gradients decreased as the test-anxiety dispositions decreased. When number of problems attempted was the measure of performance, there was a tendency for subjects of low anxiety to increase their performance as the goal approached. Eighty-four subjects fell in the high-anxiety group and 73 in the moderate-anxiety group.

63A. Gjesme, Torgrim. Sex Differences in the Relationship Between Test Anxiety and School Performance. Psychological Reports, Vol. 30, No. 3, pages 907-914, June 1972.

The relationship between test anxiety and school performance is examined in light of the achievement motivation theory. The reasoning was based on the following assumptions: (1) subjective probability of failure (Pf) in school work is determined by the individual's knowledge of his own relative ability; (2) Pf is inversely related to the pupil's level of ability; (3) girls overestimate their Pf; and (4) girls have a smaller spread in Pf than have boys. These assumptions imply that in a traditional classroom in which ability is heterogeneous, only boys of moderate ability should have their test anxiety (Mf) strongly aroused and the resulting interference should deteriorate their performance. Girls of high ability should have their test anxiety (Mf) strongly aroused, while moderate and especially low-ability girls should not have their Mf aroused much. The pattern result with 296 seventh graders is mostly in accordance with the reasoning underlying the predictions.

64A. Hall, Bruce W., and others. Effect of Stress and Relax Instructions on the Predictive Validity of a Test Device. Measurement and Evaluation in Guidance, Vol. 7, No. 1, pages 46-49, April 1974.

The research examines the hypothesis that predictive validity will be greater for a test given under stress instructions than for a test given under relax instructions.

65A. Hall, Eleanor R. Motivation and Achievement in Black and White Junior College Students. Journal of Social Psychology, Vol. 97, No. 1, pages 107-113, October 1975.

A number of motivational variables (need for achievement, educational aspiration, social science interest, self-concept of ability, test anxiety, and internal-external control) were correlated with grades obtained by males in an introductory social science course. Subjects totaled 93 whites and 66 blacks. Measures included the French Test of Insight, Rotter's Internal-External Control Scale, and the Alpert-Haber Achievement Anxiety Test. There were no race or social class differences in level of motivation. The motivational variables highly correlated with achievement were as follows: for lower-class subjects, both black and white, social science interest; for middle-class black subjects, educational aspiration; and middle-class white subjects, test anxiety. Middle-class blacks tended to be overachievers; middle-class whites, underachievers. Findings indicate that generalizations about racial differences may not hold true for particular subgroups and suggest interest in the subject is important in motivating lower-class students for academic achievement.

66A. Hambleton, Ronald K., and Traub, Rose E. The Effects of Item Order on Test Performance and Stress. Journal of Experimental Education, Vol. 43, No. 1, pages 40-46, Fall 1974.

The objectives were to study the effect of item order (easy-to difficult or difficult-to-easy) on 106 eleventh graders' performance on a mathematics test (Cooperative Mathematics Test Algebra II), on the amount of stress experienced by subjects during the test (assessed by heart-rate measures), and on the performances of high and low test-anxious subjects (assessed by the Alpert-Haber Achievement Anxiety Test). Results show that the mean number of correct answers for questions arranged in the difficult-to-easy order was significantly lower than the number arranged in the reverse order and that the difficult-to-easy order increased heart rate more than the reverse order. No differences in performance were found between high and low test-anxious subjects.

67A. Hansson, Robert Olafur. The Effects of Test Anxiety, Birth Order, and a Confident or Anxious Role Enactment on Intellective Task Performance. Ph.D. dissertation, University of Washington, 1973. (UMI Order No. 74-2212, 56 pages.)

The present experiment was designed to determine the effect on intellective task performance of having subjects provide their own cues to appropriate activity (have them role-play those behaviors). Sixty high test-anxious and sixty low test-anxious male college students were assigned to one of five conditions: a confident-succeeding role, a confident-failing role, an anxious-succeeding role, an anxious-failing role, or a control condition prior to taking a series of intellective tests. The primary hypotheses concerning the therapeutic value for test-anxious persons of role playing a confident role were unsupported. Indeed, for test-anxious persons, a control group performance was the highest.

68A. Harries, James Theodore, Jr. The Effects of Visual and Auditory Distractibility Factors on Anxiety in a Group Test-Taking Situation. Ph.D. dissertation, State University of New York at Buffalo, 1970. (UMI Order No. 71-06072, 211 pages.)

The purpose of this study was to determine the effects of visual and auditory distractibility factors on the performance of children manifesting high and low test anxiety in a group achievement test-taking situation. The theoretical source for this study was derived from the learning formulations of Dollard and Miller, and the S-R conceptualizations of Sarason and Spence. All these positions attribute drive properties to anxiety and proceed to an identical prognosis, measured by employing a test situation with subjects who differed in test anxiety scores, varied in socio-economic level, and were randomly assigned by class to five treatments. Visual and auditory distractions, as stimuli impeding cognitive functioning, were introduced or deleted from the test situation. The treatment conditions were control or standard distraction, minimal distraction, visual and audible distraction, audio distraction, and visual distraction. The results indicated that: (1) consistent with cited theory, significant differences existed between high-anxiety and low-anxiety subjects in test performance between treatment situations; and (3) interaction effects were not significant. These findings clearly refuted previous research which suggested that the effects of distractions in a test situation were insignificant.

69A. Heald, Harlan Mitchell. The Effects of Immediate Knowledge of Results and Correction of Errors and Test Anxiety upon Test Performance. Ph.D. dissertation, University of Nebraska, Lincoln, 1970. (UMI Order No. 70-17724, 53 pages.)

This study represents an exploration of the effects of level of test anxiety (HA and LA), receiving immediate knowledge of results, and correcting errors--with the assistance of assigned text passages (KR-R) and without the assistance of assigned text passages (KR)--on performance on a mid-term examination given for academic credit, and on a retest given one week later without academic credit. An analysis of gain scores indicated that HA and LA subjects under the KR-R condition made significant improvement on the retest, whereas, HA subjects under the KR condition failed to make improvement on the retest.

70A. Hedl, John J., Jr. *Test Anxiety: A State or Trait Concept?* 1971. 10 pages. ED 073 376.

The purpose of this experiment was to relate two bodies of research on anxiety: test anxiety--or anxiety proneness specific to the testing situation, and trait-state anxiety. The author hypothesized that trait anxiety--anxiety not tied to any particular situation but aroused in "any" situation--should be highly related to test anxiety during a testing situation; and, on the other hand, that state anxiety aroused during a situation of minimal evaluative stress, such as a game, should be less closely related to test anxiety. A total of 60 students were tested in both situations: a game involving no explicity evaluative stress and administration of the Slosson Intelligence Test via computer, a situation of some evaluative stress. Measures of state anxiety were obtained before and after each of these situations. The results failed to confirm the hypothesis. Since the initial analysis indicated that test anxiety was not as responsive to situational stress as initially hypothesized, a succeeding analysis was conducted to determine whether test anxiety was more similar to the construct of trait anxiety. The results of this study showed that the test anxiety construct is not as responsive to situational stress as is the state anxiety measure. References are included.

71A. Heisler, Gerald, and Schill, Thomas R. *An Investigation of Ways to Induce Optimal Aptitude Test Performance*. Paper presented at the annual meeting of the American Psychological Association (Honolulu, 1976).

This study attempted to devise a set of instructions that would facilitate optimal aptitude test performance by both high- (HA) and low-anxious (LA) students. It was hypothesized that all subjects would perform best on the School and College Ability Test (SCAT) after being given positive expectation-eliciting, reassuring instructions. Major findings included: (1) LA subjects perform significantly better than HA subjects on the SCAT; (2) LA subjects who rated their feelings before testing did significantly poorer than LA subjects who did not; (3) HA subjects scored their best after hearing negative expectation-eliciting, reassuring instructions. Contrary to common practice, results suggest neutral instructions should not be given before tests.

72A. Hellmann, Richard, II. *Test Anxiety, Achievement Motivation, Level of Aspiration and Mathematics Performance of Fourth and Eighth-Grade Students and Response to Feedback Concerning Success or Failure.* Ph.D. dissertation, University of Texas, Austin, 1976. (UMI Order No. 76-26,635, 197 pages.)

Current research in achievement behavior indicates that school performance is influenced by variables other than ability. However, generalization from many studies is limited since they commonly use students with a restricted academic background under novel or artificial conditions. A study was conducted with 138 fourth-grade and 150 eighth-grade students of both sexes in an ongoing classroom situation. The purpose was to evaluate the interrelatedness of the achievement-related factors of test anxiety, level of aspiration, achievement motivation, and math test performance. Results indicated that besides IQ, Expected Score and Self-Rated Achievement Motivation were of use in predicting performance. Students high in achievement motivation showed a greater increase in performance on the second test relative to low motivated students regardless of feedback. Though Expected Score was related to performance, other level of aspiration measures were more associated with personality variables such as test anxiety. Anxiety reported prior to tests was not related to performance, though students varying on test anxiety scores showed a differential response to feedback. Eighth-grade students overestimated their scores to a greater extent than fourth-grade students, though this was attributed to their poorer academic records. Sex differences were also noted, with boys consistently stating higher aspirations than girls.

73A. Hill, Kennedy T. Anxiety in the Evaluative Context. Young Children, Vol. 27, No. 2, pages 97-116, December 1971.

Research pertinent to evaluation of anxiety was reviewed to illustrate the relationship among anxiety, intellectual development, and academic achievement. Test anxiety was increasingly related to poor performance on IQ and achievement tests, grade repetition, and school grades across the elementary school years. In general, the author espoused the theory that anxiety patterns orginated in early childhood.

74A. Hinrichsen, James J. Prediction of Grade Point Average from Estimated Study Behaviors. Psychological Reports, Vol. 31, No. 3, page 974, December 1972.

Estimated self-reported study behaviors were obtained from 144 undergraduates. A step-wise multiple regression indicated that the best predictor of grade point average (GPA) was Verbal Scholastic Aptitude Test scores. Variables that significantly increased correlation were effective study time per week and facilitating test anxiety as measured by the Achievement Anxiety Test. Results indicate that estimated self-reported study behaviors may be as useful as ongoing records in predicting GPA.

75A. Hoffnung, Priscilla Soffer. Test Anxiety and Feedback in Programmed Learning. Ph.D. dissertation, University of Cincinnati, 1970. (UMI Order No. 71-05477, 178 pages.)

The purpose of this study was to investigate the effects of feedback style (immediate, summary-delayed, or none) and instructional set (student-private or teacher-shared) on the immediate and delayed test performance of high and low test-anxious sixth-grade subjects in a programmed learning situation. The 346 male and 325 female sixth-grade students who served as subjects were randomly assigned by class to the Feedback and Instructional Set conditions in a factorial design. A programmed instruction unit, several attitude measures, and a post-criterion test were then administered. Three weeks later, a delayed post-criterion test was given to obtain a measure of delayed retention. In general, no significant interactions between anxiety, feedback, and teacher sets were found.

76A. Holm, Melvin Gordon. *Effect of Stress Producing Situations on Manipulation Performance of High and Low Test-Anxious Industrial Arts Students*. Ed.D. dissertation, University of Missouri, Columbia, 1972. (UMI Order No. 73-7038, 107 pages.)

To determine the effect of stress-producing situations on the performance of a manipulative task by high and low test-anxious subjects, 120 seventh-grade boys in general industrial arts shop classes were administered the Test Anxiety Scale for Children and the Lie Scale for Children. On the basis of their scores, 60 boys were selected as subjects and randomly assigned to high and low test-anxious groups. The task consisted of driving nails into blocks of wood under stress and non-stress conditions. The two groups were tested for equivalency by means of a t-test. Results indicated that the groups were equal, and the data were then subjected to a two-way analysis of variance to determine any main effects attributable to test anxiety levels and treatments. Data analysis failed to reveal any significant difference in nail-driving ability between high and low test-anxiety levels or between stress and non-stress treatments. Analysis of hammering errors revealed a significant difference in errors between treatments of high test-anxious subjects, but there was no significant difference in errors between the high and low test-anxious groups when both treatments were compared simultaneously.

77A. Holmes, Charles Curtis. *Specific Effects of Test Anxiety on Reading* Comprehension as Measured by the Cloze Procedure. Ph.D. dissertation, University of Georgia, 1972. (UMI Order No. 73-05714, 98 pages.)

This study was designed to determine the effects of test anxiety level and defensiveness (lie scale) level on reading comprehension of fourth-grade boys as measured by the Cloze procedure. The subjects, 253 male fourth graders, were administered Sarason's Test Anxiety Scale for Children and the lie scale of the General Anxiety Scale for Children. Based on the results of these tests, 134 subjects were selected to be placed in six experimental groups comprised of all combinations of three anxiety levels and two lie scale levels. These subjects were then administered a forty-item Cloze reading comprehension test. Vocabulary grade equivalents were obtained as a covariate measure in addition to supplementary variables of reading and test times. Results of the supplementary analyses of variance indicated little effect of anxiety or defensiveness on the Cloze comprehension factor. However, results of analyses of vocabulary, reading times, and test times indicated general support of the idea that anxiety and defensiveness are inversely related to reading performance. There was no support for the hypothesis that defensiveness had greater inhibitory strength than anxiety.

78A. Hritz, R. J., and others. *Test Directions and Student Personality*. March 1970. 15 pages. ED 038 698.

The present study and a replication investigated the effects of personality variables on test scores obtained under Answer Every Item (AEI), Do Not Guess (DNG) and Coombs' Type (CT) directions. Subjects were administered a dominance scale. Extreme scorers were randomly assigned to one of the types of directions, then randomly assigned to complete an anxiety scale either before or after a multiple-choice vocabulary test. In the intial study, dominant individuals scored significantly higher than submissive subjects under CT and AEI directions. Low anxious subjects scored significantly higher under DNG and AEI directions, while differences under CT instructions were nonsignificant. Level of anxiety was significantly lower after the vocabulary test under AEI and CT directions, but remained the same under DNG directions. The results were less clear cut in the replication, but relationships among variables were, for the most part, consistent with the initial study. It appears that submissive, anxious individuals operate at a disadvantage in testing situations that allow some freedom in responding.

79A. Hwang, Kwo Yann. An Investigation of Test-Taking Behavior and Validation of Oregon Insurance Agents' License Examination. Ph.D. dissertation, University of Oregon, 1973. (UMI Order No. 73-20,214, 84 pages.)

The purposes of this study were to investigate the effects of test anxiety, test-wiseness, and pre-exam coaching on test scores on two of the Oregon Insurance Agents' License Examinations, and to provide validity evidence on the tests themselves. The two tests are the life and health combined examination, and the casualty examination. In addition, performance on either test by examinees from varying educational backgrounds was examined.

80A. Janisse, Michel Pierre. Test Anxiety and Choice of Evaluation Format in University Students. Psychology in the Schools, Vol. 10, No. 3, pages 350-353, July 1973.

The role of test anxiety in selecting a choice of examinations for midterm and end-of-semester evaluation was investigated. Subjects were students in five sections of a social psychology course. It was concluded that when given a choice, low test-anxious subjects are more likely to choose the traditional evaluation format than high test-anxious subjects.

81A. Johnson, Gary L., and Hummel, Thomas J. The Effects of Three Models of Test Administration on the Reading Achievement Scores of Fifth Graders. Elementary and School Guidance and Counseling, Vol. 6, No. 1, pages 21-26, October 1971.

The Test Anxiety Scale for Children was administered to 153 male and 153 female fifth graders. Subjects were assigned to high, moderate, and low test anxiety groups and then completed the Word Meaning and Paragraph Meaning subtests of the Stanford Achievement Test, Intermediate Battery Two, Form W, under one of three test administration procedures: approval, disapproval, and standard. Approval and disapproval subjects scored significantly higher on the Word Meaning test than standard procedure subjects. Low test anxiety subjects scored sugnificantly higher on the Word Meaning and Paragraph Meaning tests than the other two anxiety groups. Sex effects were not significant for the Word Meaning test; however, the disapproval male subjects scored significantly higher than the other two male groups on the Paragraph Meaning Test. Implications for test administration procedures and interpretation of achievement tests are considered.

82A. Johnson, William C. Teacher's Statements of Performance Expectations and Their Effects on the Test Performance of High and Low Test Anxious Female College Students. Ed.D. dissertation, University of Maryland, 1970. (UMI Order No. 70-22,559, 89 pages.)

The present research tested the effects of two kinds of psychological stress upon the test performance of 28 High Test-Anxious and 28 Low Test-Anxious female college students. The subjects at each anxiety level were randomly assigned to two psychological stress conditions. The psychological stress treatments consisted of written teacher's comments, reflecting performance expectations, which the subjects were directed to read prior to taking a 50-item multiple-choice test. These comments were written, under a coversheet, on the first page of the test along with the subjects' scores on a previous examination. Psychological stress treatment 1 consisted of the teacher's comment, "I'm surprised you did so well," and psychological stress treatment 2 consisted of the teacher's comment, "I expected you to do better." The following research hypotheses were tested: (1) There is a difference in the test performance of high test-anxious subjects under two different conditions of psychological stress. (2) There is a difference in the test performance of low test-anxious subjects under two different conditions of psychological stress. (3) There is a difference in the test performance of all subjects under two different conditions of psychological stress. (4) The two kinds of psychological stress affect the test performance of high test-anxious and low test-anxious subjects differentially. None of the hypotheses were supported by the findings.

83A. Jones, Charles Hamilton. The Relationships of Self-Esteem, General Anxiety and Test Anxiety in Black and White Elementary School Students in Grades Four through Six. Ed.D. dissertation, Northern Illinois University, 1973. (UMI Order No. 73-20,547, 64 pages.)

The purpose of this study was to investigate the relationships between self-esteem and general anxiety and test anxiety by sex and by grade level for a sample of white and black students of later childhood and early adolescence in a racially integrated school setting. Coopersmith's Self-Esteem Inventory and Sarason's General Anxiety Scale for Children and Test Anxiety Scale for Children were administered to the entire student population of the East Aurora Elementary School District, Aurora, Illinois. Most of the correlational analyses were statistically significant and were negative.

84A. Karabenick, Stuart A. On the Relation Between Personality and Birth Order. Psychological Reports, Vol. 28, No. 1, page 258. February 1971.

First-, second-, and later-born undergraduates were examined on three personality dimensions: (1) need for achievement, (2) test anxiety, and (3) need for social approval. Although later born subjects tended to score higher on all measures, no significant differences were found. It is suggested that some restrictions of the generality of previous findings may be indicated. Sampling differences are noted.

85A. Kestenbaum, Joel M., and Weiner, Bernard. Achievement Performance Related to Achievement Motivation and Test Anxiety. Journal of Consulting and Clinical Psychology, Vol. 34, No. 3, pages 343-344, June 1970.

Achievement motivation, test anxiety, and performance on a standardized reading test were assessed among males and females in the seventh and eighth grades. For both male and female subjects, reading performance was positively related to achievement motivation and negatively related to test anxiety.

86A. Kirkland, Marjorie C. The Effects of Tests on Students and Schools. Review of Educational Research, Vol. 41, No. 4, pages 303-350, October 1971.

The current state of testing and its effects on students and schools is presented by reviewing pertinent literature. Discussion of effects of tests on students include the following aspects: self-concept, which research findings indicate is related to academic performance, and mental and emotional health; motivation, which is said to be influenced by type of feedback to students involved; level of aspiration, which is thought to be related to both self-concept and motivation to perform well on tests; study practices, which are thought to be affected by type of examination expected; anxiety, which is said to be associated frequently with taking of tests; response sets, such as faking, and guessing; coaching and practice; examiner-examinee relationship, which is shown to affect test performance; opportunities in educational and business settings through testing; test validity, including unfairness of tests and inaccuracy; grouping for instructional purposes as a result of testing; and effects of tests on parents and teachers. Discussion of effects of tests on schools suggests that testing influences both curriculum and teaching methods. The article concludes with a brief examination of the effects of tests on society.

87A. Lavit, Ronald J. Variables Underlying the Perception of Inkblots by High Test Anxious Subjects. Psychology, Vol. 7, No. 4, pages 58-60, November 1970.

From a group of 374 college students, 40 high anxious subjects were selected from the upper fifteenth percentile of a distribution of Test Anxiety Questionnaire scores. The variables which emerged in the analysis of high test-anxious subjects were (1) reality-oriented cognitive process, (2) avoidance of emotional reactivity and denial of inner needs, (3) denial of fantasy processes, and (4) denial or repression of anxious and hostile feelings.

88A. Lavit, Ronald J. Variables Underlying the Perception of Inkblots by Low Test Anxious College Students. Psychology, Vol. 8, No. 1, pages 16-18, February 1971.

From a group of 374 college students 40 low anxious subjects were selected from the lower fifteenth percentile of a distribution of Test Anxiety Questionnaire scores. The main factors which emerged in the analysis of these low test-anxious subjects were: (1) reality-oriented cognitive processes, (2) feelings of hostility and anxiety, (3) avoidance of both emotional demands and inner needs, (4) sexual preoccupation, (5) rejection of unstructured situations; and (6) inner-looking introspective concerns.

89A. Leitch, Cynthia JoAnn. Effect of Test Anxiety on Short-Term and Long-Term Recall under the Cr/NCr and A-F-Grade-Conditions and on Potassium Ion Excretion. Ph.D. dissertation, University of Utah, 1973. (UMI Order No. 73-20,149, 117 pages.)

The major problem of this study was to determine the interactive effects of test anxiety level and grade condition upon short term and long term recall of course information. Anxiety level was determined by subject response on a questionnaire adapted from the Test Anxiety Scale for Children. Grade conditions were the Credit/No Credit grade option (Cr/NCr) and the traditional A-F grade option (A-F). Criterion measures were the course final examinations repeated after an interval of three months. A secondary problem was to determine the reliability of a physiologic variable, renal potassium ion excretion as a measure of stress when all conditions known to influence this variable are not held constant. The findings suggest that the students taking the course for the Cr/NCr condition, while initially achieving better scores on the final examinations, did not retain as much of the course information as measured by the final examinations as did those subjects who were registered for the A-F grade. The results of this study also tend to support the assumption that the low-anxious student achieves at a higher level than the high-anxious student, and that the drive level present in course examinations is about optimum for the low-anxious subject. No support can be given for the Cr/NCr grade condition, however, on the basis that it reduces drive level for the high-anxious subject enabling him to perform better on measures of academic achievement.

90A. Li, Anita King-Fun. Parental Attitudes, Test Anxiety and Achievement Motivation: A Hong Kong Study. Journal of Social Psychology, Vol. 93, No. 1, pages 3-12, June 1974.

Data obtained through a questionnaire from the parents of secondary age Chinese children showed contrasting patterns of test anxiety and need achievement between boys and girls.

91A. Liebling, Barry A., and Shaver, Phillip. Evaluation, Self-Awareness, and Task Performance. Journal of Experimental Social Psychology, Vol. 9, No. 4, pages 297-306, July 1973.

Recent research on test anxiety indicates that self-awareness interferes with task performance by decreasing the proportion of attention paid to the task. Wicklund and Duval's 1971 theory of objective self-awareness predicts the opposite: that self-awareness will induce a person to try harder and to perform at a higher level. The present experiment tested these contradictory hypotheses by giving 40 female undergraduates the task of copying Swedish under high- or low-evaluation instructions while in front or in back of a mirror. Evidence indicates that both hypotheses are correct, each at a different level of evaluation. Results are discussed in terms of their implications for a unified social-psychological theory of evaluative self-awareness which could account for findings now classified under separate headings (such as test anxiety, self-awareness, and social facilitation).

92A. Lin, Yi-Guang, and McKeachie, Wilbert J. Sex Similarity in Personality Correlates of Test Anxiety. Psychological Reports, Vol. 29, No. 2, pages 515-520, October 1971.

Sex differences in correlation coefficients between the California Psychological Inventory, Sixteen Personality Factor Questionnaire scales and Alpert-Haber Achievement Anxiety Test scales were evaluated in four samples of subjects in French (54 males and 156 females), mathematics (124 males and 66 females), and two introductory psychology courses (81 males and 146 females in the first sample and 297 males and 349 females in the second sample). The fact that fewer than seven percent differences were significant at the five percent level in 216 pair-wise comparisons, and that there were significant correlations between correlation matrices, seems to indicate the lack of sex differences in personality correlates of test anxiety.

93A. Logiudice, Joseph F. The Relationship of Self-Esteem, Test Anxiety and Sixth Grade Students' Arithmetical Problem-Solving Efficiency under Variant Test Instructions. Ph.D dissertation, St. John's University, 1970. (UMI Order No. 70-23,263, 156 pages.)

The purpose of this study was twofold: (1) to investigate the contention that the manipulation of the test instruction variable will influence a measure of a youngster's school achievement in accordance with his combined level of test anxiety (drive) and self-esteem; and (2) to investigate the degree of relationship between measures of test anxiety, self-esteem, intelligence, and academic achievement. Intellectual ability in sixth graders was significantly related to reading and mathematics performance. The older sixth grade boy and girl who exhibited low self-esteem did poorly on group intelligence tests and tests of reading performance. Sixth-grade boys and girls who exhibited a positive attitude toward their peers also manifested satisfactory relationships with their parents and towards themselves. Positive attitudes towards their parents were also related to good attitudes toward school and self. Satisfactory self-esteem was related to success in reading and mathematics. Students high on the lie scale did poorly in arithmetic and reading and also exhibited poor self-attitudes. Test anxiety was related to unsatisfactory attitudes toward parents, poor attitude toward school, and a negative sense of self-worth.

94A. Lombardi, Vincent A. The Effect of Test Anxiety on the Relationship Between Intelligence and Reading Achievement in a Group of Seventh-Grade Suburban Children. Ed.D. dissertation, Temple University, 1974. (UMI Order No. 74-28,181, 86 pages.)

Many researchers have reported negative relationships between test anxiety and reading achievement. In addition, negative correlations have been found between test anxiety and intelligence. These cognitive abilities, while negatively related to test anxiety, are positively related to each other. The 152 male and 150 female students in this investigation constituted the entire seventh-grade population of a suburban junior high school near Philadelphia. They were administered the appropriate forms of the Science Research Associates, Primary Mental Abilities Test, the Metropolitan Achievement Test (Advanced Reading), and the Test Anxiety Scale for Children. It was concluded that high levels of test anxiety were a significant influence on the relationship between reading achievement and intelligence. The high test-anxious student's behavior suggests a motivation to do well on cognitive measures but his concern seems to contribute to lower reading achievement. It was further concluded that the negative relationship between test anxiety and reading achievement was not influenced by low, moderate, and high levels of intelligence. Test anxiety would seem to be debilitating to all students regardless of mental ability.

95A. Long, K. Kilby, and Bessemer, David W. An Analytical Investigation of Instructions Designed to Elicit Test Anxiety. Psychological Reports, Vol. 29, No. 1, pages 283-294, August 1971.

The components of motivating instructions typically used to elicit performance decrements in high test-anxious subjects were studied to determine whether (1) the mention of a test, (2) identifying the test as an intelligence measure, or (3) suggesting evaluation in relation to a peer-group is primarily responsible for the observed decrement. One hundred seventy high and low test-anxious undergraduates were given 12 paired-associate lists with experimental instructions between the eighth and ninth lists. Analyses of postinstruction changes showed significant differences only between the instruction containing all three components and the control condition. The magnitude of the reliable performance decrement produced by the instructions was inversely related to subjects' level of performance before the instructions were given. No decrement occurred for most subjects at the highest levels of preinstructional proficiency. It is suggested that increased emphasis might well be given to the analysis of effects of test anxiety on changes in individual performance.

96A. Mandelson, Leonore R. Test Performance on a Verbal Learning Task as a Function of Anxiety-Arousing Testing Instructions. Journal of Educational Research, Vol. 67, No. 1, pages 37-40, September 1973.

The purpose of this study was to clarify some of the dynamics of test anxiety in the foreign-language classroom; to evaluate the effect of different test instructions (calculated to arouse or reduce test anxiety) on the test performance of foreign language pupils.

97A. Manley, Merlin J., and Rosemeir, Robert A. Developmental Trends in General and Test Anxiety among Junior and Senior High School Students. Journal of Genetic Psychology, Vol. 120, Second Half, pages 219-226, June 1972.

The developmental patterns of anxiety beyond the elementary school years were examined. One thousand nine hundred fifty-nine seventh to twelfth graders completed Sarason's General Anxiety Scale and Test Anxiety Scale. Results suggest distinct patterns of anxiety. Girls exhibited higher anxiety of both types than did boys, and later grades showed less test anxiety than did earlier grades. Boys showed a steady decline in test anxiety over the grades while girls, although similarly declining, were not as consistent. Senior high school boys, as a group, displayed less anxiety of both types than did junior high boys. Comparable groups of girls differed only on test anxiety.

98A. Mann, Jay. Applying Observational Learning to Student Problems, Such as Examination Anxiety, in School Settings. September 1971. 10 pages. ED 057 382.

This symposium paper describes two experiments in which the principles of observational learning were applied in school settings to the treatment of two separate groups of test-anxious junior high school students. The first experiment was designed to test the assumption that the counter-conditioning responses thought to occur in systematic desensitization of avoidance behavior could be acquired vicariously. The second was designed to permit evaluation of the effects of expectations for benefit and diverse observational styles exhibited by observer subjects. Results included: (1) experimentals achieved a substantial and highly significant decrease in reported test anxiety; the control group increased slightly in anxiety; (2) neither vicarious nor direct treatment, group or individual, or any combination of these treatments produced differential change; and (3) observation of desensitization, using either live or videotaped stimuli, appears to offer an economical and efficient method of treating test anxiety in the school setting.

99A. Mann, Lester, and others. The Effect of Serial Retesting on the Relative Performance of High and Low Test Anxious Seventh Grade Students. Journal of Educational Measurement, Vol. 7, No. 2, pages 97-104, Summer 1970.

Serial retesting was investigated as a means of improving the test performance of high-anxiety seventh graders relative to their low-anxiety peers. The Academic Promise Test was administered four times at one-week intervals. All groups continued to improve significantly in a monotonic, linear fashion, with the greatest improvement in the Numerical Test. Contrary to expectation, there were no significant interactions among previous achievement levels, predispositional test anxiety levels, and test trials.

100A. Many, Margaret Ames. The Relationship Between Anxiety and Self-Esteem in Grades Four through Eight. Ed.D. dissertation, Northern Illinois University, 1973. (UMI Order No. 73-20,557, 129 pages.)

This study examined the relationship between self-esteem, general, and test anxiety among a sample of 4,367 children in grades four through eight. Coopersmith's Self Esteem Inventory (SEI) was used to assess self-esteem. Sarason's General Anxiety Scale for Children (GASC) and Test Anxiety Scale for Children (TASC) were used to measure anxiety. The population consisted of all students, grades four through eight, in the public schools of two cities in Illinois. These schools contained students from differing racial, ethnic, and socioeconomic backgrounds. Correlational analyses between TASC and SEI scores revealed all relationships negative and significant when analyzed by total population, grade, sex, and grade by sex. All correlational analysis between GASC and TASC scores for the total group, by grade, sex, and grade by sex were significant and positive.

101A. Many, Margaret Ames, and Many, Wesley A. The Relationship Between Self-Esteem and Anxiety in Grades Four through Eight. Educational and Psychological Measurement, Vol. 35, No. 4, pages 1017-1021, Winter 1975.

This study examined the relationships between a measure of self-esteem and each of two measures of general anxiety and test anxiety in 4,367 fourth to eighth graders. The Self-Esteem Inventory, General Anxiety Scale for Children, and Test Anxiety Scale for Children were employed. There were statistically significant negative correlations between the measure of self-esteem and each of the measures of general anxiety and test anxiety when scores were analyzed by total group, grade level, and sex. Although these correlations tended to be low to moderate, they were consistent in suggesting a negative relationship between a measurable construct of self-esteem with each of the corresponding constructs of general and test anxiety. Implications tend to support the possibility of reducing anxiety in elementary- and junior-high-school-age pupils by enhancing the way in which they see themselves.

102A. Marso, Ronald N. Classroom Testing Procedures, Test Anxiety, and Achievement. Journal of Experimental Education, Vol. 38, No. 3, pages 54-58, Spring 1970.

Four groups were maintained in a four-factor analysis of covariance design to determine if more frequent, graded unit examinations followed by test feedback facilitate achievement and allow students with high-measured test anxiety to perform better on final course examinations. The testing procedures studied consisted of the administration of 168 examination items as either three- or six-unit exams, grading or not grading the unit exams, and providing or not providing class feedback and discussion following the examinations. Analysis of performance on two posttest measures indicates that subjects achieved more from frequent, graded unit tests followed by feedback; however, variations of these conditions did not appear to influence the performance of subjects with high-measured test anxiety.

103A. Maurer, Eva Dell. The Effects of Locus-of-Control and Test Anxiety on Children's Response to Social Reinforcement in an Evaluative Situation. Ph.D. dissertation, University of Illinois at Urbana-Champaign, 1973. (UMI Order No. 74-12,102, 113 pages.)

This study was an attempt to clarify the results of another study wherein the influence of social reinforcement on children's achievement behavior was investigated. Fifth-grade boys and girls were administered the Intellectual Achievement Responsibility Questionnaire and the Test Anxiety Scale for Children. Both measures are related to the school situation. It was hypothesized that a three-way interaction involving Test Anxiety, Locus of Control and Reinforcement Conditions would be found. The reinforcement conditions included praise, criticism, and neutrality. The subjects in this study were told they were going to take a new test to see how well they could do. A digit-symbol coding task was used and the rate of response was measured compared to the baseline rate of response to obtain a difference score, which was the major dependent variable for this study. The major finding of interest was a two-way interaction involving Test Anxiety and the Reinforcement Conditions (Praise, Criticism, and Neutrality). Low test-anxious subjects performed at a much higher level in the Criticism Condition than did the high test-anxious subjects. In the Praise and Neutrality conditions, the performance of the high and low test-anxious subjects was more nearly alike, although the general level of performance was considerably higher in the Praise condition. This interaction reached statistical significance. Locus of Control did not figure in any major finding.

104A. McKinley, Mark B., and Lorion, James E. Test Anxiety as a Differential Function of Answer Sheet Design. June 1975. 24 pages. ED 128 358.

The purpose of this study was to determine if answer sheet design, particularly a self-scoring answer sheet, was a differential variable of test anxiety. Data for the study were gathered from the administration of pre- and post-anxiety tests, given in conjunction with an in-class psychology exam. Students in the control group used conventional IBM answer sheets, while students in the experimental group were furnished with self-scoring answer sheets. The following hypotheses were tested: (1) For the group of students using the IBM answer sheets, the pre- and posttest anxiety scores significantly differ from one another. (2) For the group of students using the self-scoring answer sheets, the pre- and posttest anxiety scores differ significantly. (3) For both groups, the posttest anxiety scores significantly differ from one another. (4) For the two groups, the mean performance scores on the psychology exam significantly differ from one another. The results indicated that none of the hypotheses was confirmed. Therefore, it was concluded that answer sheet design has no significant influence on test anxiety.

105A. McMahon, Michael Patrick. The Effects of Knowledge of Ability Test Results on Academic Performance and Test Anxiety. M.A. thesis, San Jose State College, 1971.

After compiling local norms and a prediction table for SCAT Series II, 222 freshmen at San Jose State were randomly assigned to one of the following treatment conditions: (1) subjects who received a detailed interpretation of their SCAT results and a prediction of their expected grade point average (GPA) for that semester; (2) subjects who received only the SCAT converted score data; and (3) subjects who received no feedback. Though it was hypothesized that students in the detailed feedback group would attain a higher GPA and lower test anxiety score than the other groups, differences in GPA were insignificant, and the detailed knowledge group displayed the most test anxiety. The factors contributing to these results are discussed.

106A. McMahon, Michael P. Effects of Knowledge of Ability Test Results on Academic Performance and Test Anxiety. Journal of Counseling Psychology, Vol. 20, No. 3, pages 247-249, May 1973.

The School and College Ability Test was administered to 222 freshmen during the second week of the spring semester. Subjects were then assigned to groups receiving detailed, limited, or no knowledge of their test performance. Subjects completed the Test Anxiety Scale during the final examination period and grade point averages (GPAs) were collected at the end of the semester. It was hypothesized that subjects with detailed knowledge would obtain higher GPAs and have a lower level of test anxiety. No significant differences in GPAs were found among the groups. Test anxiety was higher for the detailed knowledge group. It is suggested that the time factor between knowledge of test results and the administration of the test anxiety measure and GPA collection could have reduced the impact of the knowledge on the results.

107A. Merritt, Paul William. The Effects of Variations in Instruction and Final Unit Evaluation Procedures on Community College Beginning Algebra Classes. Ph.D. dissertation, University of Michigan, 1972. (UMI Order No. 73-11,207, 178 pages.)

The purpose of this study was to determine the effects of classroom organization for instruction and final unit evaluation procedure on mathematics achievement, attitude toward mathematics, test anxiety, and the dropout and failure rate in a community college beginning algebra course. The final unit evaluation procedures were a single unit test or the option to take a second test; the classroom organizations for instruction were whole-class or flexible within-class grouping. For all but the section dealing with success and dropout rate, the analysis was concerned with 161 community college students who finished the beginning algebra course. Results showed no significant difference between treatment groups in mathematics achievement (as measured by the Cooperative Mathematics Achievement Test), attitude toward mathematics, test anxiety, the percentage of student dropouts, and the percentage of students who received a grade of C or better. The two-test group exhibited a significantly greater mean Final Unit Test Average than the one-test group.

108A. Michaels, Robert Joseph. Test Anxiety, Interpolated Task Difficulty, and Short-Term Memory. Ph.D. dissertation, University of Connecticut, 1974. (UMI Order No. 75-10,649, 39 pages.)

Test anxiety has been conceptualized as the tendency to attend to task irrelevant stimuli during testing situations. To test the hypothesis that such attention occupies information processing capacity, and thus would impair the maintenance of to-be-remembered material in short-term store, high and low test-anxious subjects performed a variation of the Brown-Peterson short-term memory task with interpolated task difficulty varied between subjects. It was predicted that performance would decrease as the interpolated task became more difficult and that high test-anxious subjects would perform more poorly than low test-anxious subjects at moderate levels of task difficulty. Test anxiety showed no main or interactive effects on recall, and only affected responses to one of seven postexperimental questions. Recall decreased monotonically as task difficulty increased, and subjects in the difficult condition indicated they were more anxious and less relaxed than those in the easy condition. Possible explanations for the lack of test-anxiety effects were examined and, after reviewing the development of the Test Anxiety Scale and noting basic validational deficiencies, it was concluded that current conceptualizations of what the Test Anxiety Scale measures might best be discarded.

109A. Milford, Gary Edward. Digit Symbol Performance as a Function of Instructions and Test Anxiety. Ph.D. dissertation, Mississippi State University, 1972. (UMI Order No. 73-00,172, 104 pages.)

This study was conducted to determine if performance on a difficult digit symbol task varied as a function of instructions and test anxiety. The Sarason Test Anxiety Scale was administered to 373 undergraduates. On the basis of extreme scores, 36 high and 36 low test-anxious subjects were selected. Twelve subjects in each anxiety group were randomly assigned to one of three instruction conditions. The instruction conditions included: (1) instructions to learn the digit symbol code, (2) instructions that the code not be learned; and (3) ambiguous instructions without a specific requirement to learn or not learn the code. Test booklets were prepared for each of the three instruction conditions and administered on a group basis. The instructions failed to prompt differential performance over trials, but a significant anxiety by instruction interaction effect was obtained over trials.

110A. Miller, Ann M. Is There Another Way to Test People Like Me? 1973. 8 pages. ED 124 809.

This paper offers the classroom teacher a positive answer for the test anxious student. The writer developed a group testing strategy that is concerned with ways students learn as well as subject matter testing. This evaluation strategy, used successfully in high school and college classes, is based on group work principles as applied in the classroom. This paper deals with group size, determination of group membership, and cohesive task-centered groups. While this paper does not claim the test anxious student will eventually perform better on individual paper and pencil tests, the evidence suggests that students generally improve test performance when group testing strategies are used.

111A. Morris, Larry W., and Liebert, Robert M. Relationship of Cognitive and Emotional Components of Test Anxiety to Physiological Arousal and Academic Performance. Journal of Consulting and Clinical Psychology, Vol. 35, No. 3, pages 332-337, December 1970.

Worry was found to be more highly negatively related to examination grades than was emotionality or pulse rate, and worry was more highly negatively related to expectancy than was emotionality. However, pulse rate was no more highly related to emotionality than to worry, suggesting that questionnaire and direct measures of autonomic arousal are less closely related than has been generally assumed.

112A. Morris, Larry W., and others. Components of School Anxiety: Developmental Trends and Sex Differences. Journal of Genetic Psychology, Vol. 128, First Half, pages 49-57, March 1976.

A multidimensional approach was used to investigate the relationship between worry-emotionality and school anxiety. Dunn's School Anxiety Questionnaire was administered to 104 third to eighth graders (Study 1) and 122 eighth graders (Study 2). Significant decrements in anxiety with increasing age were found for worry (but not emotionality), report card anxiety, and failure anxiety. In Study 1, females scored significantly higher than males on emotionality (but not worry) and test anxiety. Sex differences were greater in Study 2, with females scoring consistently higher. In Study 2, a worry-emotionality questionnaire administered immediately preceding a final examination correlated highly with School Anxiety Questionnaire scores. Results are taken as generally supportive of the multidimensional approach to the study of school anxiety.

113A. Munz, D.C., and Jacobs, P.D. An Evaluation of Perceived Item-Difficulty Sequencing in Academic Testing. British Journal of Educational Psychology, Vol. 41, No. 2, pages 195-205, June 1971.

In order to evaluate a method for deriving subjective item-difficulty values and to assess the effects of subjective item-difficulty sequencing in academic testing, 142 introductory psychology students and nine introductory psychology instructors scaled 210 multiple-choice questions on the subjective difficulty students would experience when attempting to solve an item. Item arrangements--hard-to-easy (H-E), easy-to-hard (E-H), and random (R)--were constructed using perceived item-difficulty values and randomly distributed the following semester as a final examination to 133 introductory psychology students. The Achievement Anxiety Test was administered prior to the final examination. To assess the effects of item sequencing on the examinee, the Perceived Stress Index, a situational measure of test anxiety, was taken along with test evaluation information and performance data. Results suggested that (1) test constructors should consider the effects of subjective item-difficulty sequencing on the examinee's test evaluation as providing the only empirical justification for advocating that items be sequencing E-H; and (2) measurement of the test content factor is contaminated by test anxiety to a greater degree under the R and E-H sequence formats than under the H-E format.

114A. Munz, David C., and others. A Further Test of the Inverted-U Hypothesis Relating Achievement and Academic Test Performance. Journal of Psychology, Vol. 89, No. 1, pages 39-47, January 1975.

This tests the assumption that the inverted-U hypothesis, which shows performance as a function of activation level, mediates the relationship between achievement anxiety and academic test performance. It compares the Alpert-Haber Achievement Anxiety Test scores of 75 male and female undergraduates with a self-report measure of activation taken prior to a classroom examination. Results support the predicted relationship between achievement anxiety reaction type and academic performance, but only partially support the inverted-U hypothesis. Results suggest that an examinee experiences two general types of arousal in the testing situation: one that enhances and one that impedes performance.

115A. Nasseri, Gholamreza. Self-Esteem, Test Anxiety and General Anxiety among Students of Three Ethnic Groups in Grades Nine through Twelve. Ed.D. dissertation, Northern Illinois University, 1975. (UMI Order No. 76-08926. 173 pages.)

The intent of this study was to investigate levels of self-esteem, general anxiety, and test anxiety, and their interrelationships among the Caucasian, black, and Spanish-surnamed students in grades nine through 12. The relationships of sex and grade levels to these variables were also examined. A group of 2,448 students from two public high schools was tested, utilizing Coopersmith's Self-Esteem Inventory (SEI) and Sarason's General Anxiety Scale for Children (GASC) and Test Anxiety Scale for Children (TASC). Correlational analyses of data showed a positive relationship between the two anxiety scales, and a negative relationship between each anxiety scale and self-esteem data. Analysis of the difference between each two correlation coefficients for independent subgroups did not show a clear pattern of the effects of sex, race, and grade levels. Analysis of the differences

115A. Nasseri, Gholamreza. *Self-Esteem, Test Anxiety and General Anxiety among Students of Three Ethnic Groups in Grades Nine through Twleve*. Ed. D. dissertation, Northern Illinois University, 1975. (UMI Order No. 76-08926. 173 pages).

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116A. Naylor, Frank D., and Gandry, Eric. The Relationship of Adjustment, Anxiety, and Intelligence to Mathematics Performance. *Journal of Educational Research*, Vol. 66, No. 9, pages 413-417, May 1973.

Could a non-normative measure of adjustment account for performance in mathematics independently of anxiety or intelligence? The mathematics performance of 621 seventh graders was analyzed in relation to a measure of "the person I would like to be." Covariance analyses for test anxiety and intelligence were carried out. It was found that the measure of adjustment was significantly related to mathematics performance after the effects of anxiety and intelligence were partialed out.

117A. Newmark, Charles S., and others. Test-Induced Anxiety with Children. *Journal of Personality Assessment*, Vol. 39, No. 4, pages 409-413, August 1975.

A study of 35 elementary school children was conducted to assess the effects of test-induced anxiety. Subjects received the Wechsler Intelligence Scale for Children (WISC), Rorschach, Children's Apperception Test (CAT), and Sentence Completion Test in counter-balanced order with a test-retest interval of approximately 24 hours. State (transitory) and trait (innate) anxiety measures were assessed using the STAIC (State-Trait Anxiety Inventory for Children) immediately prior to and following each test administration. Results indicated that state anxiety measures increased significantly following adminstration of the more ambiguous and school related assessment tests (Rorschach and WISC). In contrast, the more structured, less amorphous CAT and Sentence Completion Test did not induce any significant changes in state anxiety. In all cases, trait anxiety remained relatively stable.

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118A. Nighswander, James K. A Validity Study of Self-Report and Physiological Measures of Test Anxiety. Ph.D. dissertation, Southern Illinois University, 1970. (UMI Order No. 71-02394, 176 pages.)

The most common method for measuring the extent of test anxiety is the self-report scale. However, there is much evidence to suggest that self-report scales yield inaccurate and therefore invalid scores due to defensiveness, acquiescence, lying, distortion, and social desirability response sets. The present investigation sought to overcome the problems associated with the traditional approaches to test anxiety research by using a different measure of arousal--the galvanic skin response (GSR). The two samples under investigation consisted of 119 fifth- and sixth-grade boys and girls from three different schools. Twelve students from each of 12 classrooms were administered a short achievement battery containing subtests over four subject content areas: arithmetic, language arts, social studies, and science. Simultaneous GSR recordings were obtained during testing. The major objective of the study was to compare the GSR measures with scores from the Test Anxiety Scale for Children (TASC), a widely used self-report test anxiety instrument, to determine whether the GSR could provide significantly better prediction of IQ, overall achievement, and specific subtest performance than the TASC. Most of the expected relationships and differences hypothesized failed to materialize. The expected higher relationships between GSR levels and the criterion variables compared with the TASC with the same variables were not substantiated.

119A. Nighswander, James K., and Beggs, Donald L. A Study of the Relationships Between Test Order, Physiological Arousal, and Intelligence and Achievement Test Performance. February 1971. 20 pages. ED 046 983.

The relative predictive abilities of two indices of test anxiety were investigated. The galvanic skin response (GSR) and the Test Anxiety Scale for Children (TASC) were used as predictor variables for IQ and achievement test performance. The results of multiple linear regression analysis indicated that neither the TASC nor the GSR, combined over four achievement content area subtests, (administered in random order), were highly consistent predictors of the test performance. That the TASC failed to correlate, in a systematic way, with either GSR levels or with test scores, casts some doubt on its validity as a measure of test anxiety. It is suggested that the effects of such variables as social response patterns, and two unexpected findings--the effects of test order on GSR arousal, and increased arousal across tests from the beginning to the end of testing--be investigated.

120A. Nijhawan, H.R., and Cheema, P. Maze Learning Under Stress in Normal and High Test Anxious Children. Journal of the Indian Academy of Applied Psychology, Vol. 8, Nos. 1 and 2, pages 23-29, 1971.

The purpose of this research was to study the effect of stress on the performance of normal and high test anxious children. Stress was induced through verbal comments regarding failure, competition and time. The Test Anxiety Scale for Children (TASC) was used to measure anxiety. A two-way analysis of variance, taking into account anxiety and stress, revealed that stress proved to be highly significant. The high-anxious children performed better than the low-anxious though the results did not reach statistical significance. None of the anxiety stress interactions proved significant.

121A. Nottelmann, Edith D. Test Anxiety and Off-Task Behavior in Evaluation Situations. April 1975. 12 pages. ED 113 022.

An experiment was performed to assess if and how attention to a problem-solving task varies with anxiety level. In light of research literature suggesting that high-anxious children are inattentive to tasks in order to avoid evaluation, it was hypothesized that high-anxious children would glance away from a task more often than less-anxious children. Subjects were 48 fourth and fifth graders. The children were videotaped through a one-way mirror while they performed timed anagram tasks in the presence of a male experimenter working on a similar task. Results showed that less anxious children performed better at the anagram task than high-anxious children. High-anxious children also were observed to engage in significantly more off-task behavior and more glancing away from their task than less-anxious children. Research on family inter-action patterns associated with high and low levels of anxiety and distractibility in fourth and fifth graders is discussed in view of the results of this study.

It is suggested that parents of highly distractible and anxious children may be teaching their children to respond to problem-solving situations with task-inappropriate and dependent behavior, at the expense of task performance.

122A. Novak, Edward Ladis. The Relationship Between Academic Performance, Test Anxiety, Race, Sex, Scholastic Ability, and School Organization of Pre-Adolescent Public School Students: A Multivariable Approach. Ed.D. dissertation, University of Akron, 1973. (UMI Order No. 73-16,437, 231 pages.)

The purpose of the study was to delineate some of the relationships between academic (reading) performance, test anxiety, race, sex, scholastic ability, and school organization. The sample consisted of 206 students: 132 fourth graders and 74 nongraded counterparts (fifth year students) from a middle-class, Cleveland, Ohio, suburban school community comprised of three political entities (a township, a village, and a city) with approximately 22,000 population that was 78 percent Caucasian. The public school enrollment totalled 54 percent Caucasian. There were 107 males and 99 females within the sample of 101 Caucasians and 105 non-Caucasians. The "set" of independent variables of test anxiety, race, sex, scholastic ability, and school organization accounted for a significant amount of variance (predictability) for the criterion of academic (reading) performance, with the scholastic ability variable being the best single predictor by a significant margin.

123A. O'Donnell, Clifford R. The Measurement of Anxiety and Evaluative Components in Exam and Speech Concepts for Males. Journal of Clinical Psychology, Vol. 29, No. 3, pages 326-327, July 1973.

The utility of adjective pairs in the independent measurement of anxiety and evaluative components in exam and speech concepts was assessed, using 69 male undergraduates as subjects. Of 101 adjective pairs, 37 loaded .50 or more on an anxiety factor and 12 on an evaluative factor. As predicted, six pairs selected from the anxiety factor and used to rate test and speech concepts correlated with Sarason's Test Anxiety Questionnaire and Paul's speech anxiety measure. Six pairs from the evaluative factor did not correlate significantly with any of the anxiety measures.

124A. Ohlenkamp, Edward A. The Relationship Among Test Anxiety, Self-Esteem, and Achievement for Cooperative Career Education Students in Grades Eleven and Twelve. Ed.D. dissertation, Northern Illinois University, 1976. (UMI Order No. 76-21,475, 107 pages.)

The intent of this study was to examine the relationships existing among test anxiety, self-esteem, and academic achievement for students in grades eleven and twelve, with an emphasis on students enrolled in cooperative career education. The population consisted of 496 eleventh and twelfth graders from one high school located in northern Illinois. The Test Anxiety Scale for Children and the Self-Esteem Inventory were administered to all juniors and seniors by the homeroom teacher midway through the school year. There were significant correlations among the three variables for students enrolled in the various cooperative career education programs as well as the general education program. The relationships between self-esteem and anxiety were generally negative. Correlations between self-esteem and academic achievement were usually positive, and correlations between test anxiety and academic achievement were generally negative.

125A. O'Reilly, Robert P., and Wightman, Lawrence E. Improving the Identification of Anxious Elementary School Children through the Use of an Adjusted Anxiety Scale. Journal of Educational Measurement, Vol. 8, No. 2, pages 107-112, Summer 1971.

Anxiety scores (Test Anxiety Scale for Children) for 165 sixth graders were adjusted for defensiveness (Lie Scale for Children) by an equally weighted summation of the two scores. Construct validity of the adjusted anxiety score was superior to that of the uncorrected score, as indicated by an increase in correlation with achievement on a programmed instruction unit.

126A. Osterhouse, Robert A. Classroom Anxiety and the Examination Performance of Test-Anxious Students. Journal of Educational Research, Vol. 68, No. 7, pages 247-249, March 1975.

This study examined the academic performance of a total of 412 low-, moderate-, and high-test anxiety university students (as measured by the Inventory of Test Anxiety) within two classrooms which differed significantly in the mean level of anxiety aroused by examinations. When differences in classroom anxiety were not considered, a significant negative linear trend was observed between anxiety level and academic performance. No differences were found in the academic performance of low test-anxiety subjects within the two classrooms, but a significant interaction was observed between classroom anxiety level and the academic performance of moderate and high test anxiety subjects. Moderate test anxiety subjects tended to obtain slightly higher examination scores in the High Anxiety section than in the Low Anxiety section, while the opposite was true for high test-anxiety subjects.

127A. Pagano, Don F. Effects of Test Anxiety on Acquisition and Retention of Material Resembling the Content of College Courses. Journal of Experimental Research in Personality, Vol. 4, No. 3, pages 213-221, June 1970.

Forty low, 56 medium, and 36 high test-anxiety male undergraduates learned paired-associate (PA) material resembling content from a psychology course to determine whether test anxiety has a greater effect on the acquisition of verbal material, or, controlling for level of original learning (OL), whether the effects of anxiety are felt more in retention. To test an assumption that OL be taken as an analogy of studying for exams, and retention be taken as an analogy of actual test taking, affect scales, pulse-rate measures, and questionnaire data were gathered during experimental sessions, on a regular class day, and just prior to an actual examination (Quiz 1). Subjects were divided factorially into standard and motivating instructional conditions. The latter instructions stressed the high relationship between level of OL, level of retention, and college grades. Nonsignificant anxiety effects in OL, lack of an Anxiety X Instructions interaction, and no anxiety effect on Quiz 1 grades suggest reassessment of Mandler and Sarason's original model. The absence of anxiety effects in retention supported Underwood's hypothesis that when acquisition differences are controlled, little or no retention differences are obtained. PA performance was related to scores from Quiz 1, and both PA learning and Quiz 1 scores correlated highly with general scholastic aptitude. Self-report data added construct validity for the Test Anxiety Questionnaire: high-anxiety subjects indicated feeling more excited during the regular class session, and more tense during OL and before Quiz 1.

128A. Pagano, Don F., and Katahn, Martin. Construct Validity, Disconfirming Evidence and Test-Anxiety Research. Journal of Personality, Vol. 40, No. 1, pages 137-148, March 1972.

Using the test-anxiety theory of Mandler and Sarason as a specific instance, it is argued that at least eight assumptions enter into the generation of statistical from substantive hypotheses. Examples from the literature demonstrate that the disconfirmation of statistical hypotheses does not lead to reinterpretation or refinement of the nomological network but at best to a reliance on the implicit assumptions to rationalize negative data.

129A. Pagano, Don F., and Katahn, Martin. Effects of Test Anxiety on Acquisition and Retention of Psychological Terms and Single Letter Stimulus Response Pairs. Journal of Experimental Research in Personality, Vol. 2, No. 4, pages 260-267, December 1967.

Seventy-two high and low test-anxious subjects (male undergraduates) learned definitions of psychological terms and letter pairs in a paired-associate format. Acquisition differences due to anxiety were found on the letter pair list but not on the psychological term list. Controlling for original learning (OL) by using Underwood's single entry projection technique resulted in no significant retention differences for anxiety on either list, 24 hours or seven days after OL. Anxiety differences on the acquisition of the letter-pair list are explained in terms of Mandler and Watson's notions of task novelty and its effects on the interruption of established behavioral patterns. The lack of anxiety differences in retention suggests a reformulation of current ideas involving the effects of test anxiety during actual testing situations.

130A. Pailas, Jane Walters. A Study of the Relationship Between Test Anxiety and Test-Wiseness, and Between Sex and Test-Wiseness Under Relaxed and Standard Test Instructions. Ph.D. dissertation, University of Connecticut, 1975. (UMI Order No. 76-14,293, 135 pages.)

The relationship between test anxiety (TA), sex, and test instruction condition, and the dependent variable, test-wiseness (TW), was investigated. First, 443 sixth graders from six schools in West Hartford, Connecticut were administered the Test Anxiety Scale for Children (TASC) and the Lie Scale for Children (LSC), developed to accompany the TASC to control against confounding related to a general tendency to lie. Children with LSC scores above eight were elimated. Second, children whose TASC scores fell within the upper and lower quartiles for their sex were randomly assigned without regard to school or classroom to either the Relaxed (experimental) test instruction condition or Standard (control) condition for the administration of the TW instrument.

Relaxed instructions avoided the use of the word "test" and encouraged the children to relax and enjoy helping the researcher and other children. Standard instruction stressed the words "important test" and urged the children to do their best. The TW instrument adapted from Slakter employed four TW cues: stem-option similarity, options similarity, absurd options, specific determiners (always, never). Results derived from an analysis of variance with unequal cell sizes indicated a significant main effect for TA. High TA children received significantly lower TW scores than low TA children, a result supportive of the hypothesis that high TA and low TW-scoring individuals represent an intersecting population. The data analysis failed to support the research hypotheses that significant interactions would be found between TA and test instruction condition, and between TA, sex, and test instruction condition.

131A. Paretti, Joseph Peter. The Effects of Examiner Race and Sex Factors on Anxiety among Black School Children in a Group Test-Taking Situation. Ed.D. dissertation, Boston University School of Education, 1974. (UMI Order No. 74-16,436, 146 pages.)

This study attempted to support the findings that: (1) black children had higher levels of anxiety than white children; (2) anxiety significantly affected their test performance; and (3) the presence of a black or white or male or female examiner would significantly affect test performance. Twelve examiners (three black males, three black females, three white males, and three white females) were assigned randomly to twenty-four different fifth- and sixth-grade classrooms in a newly integrated school system. The examiners administered the Test Anxiety Scale for Children (TASC) (Sarason et al., 1960) and the Comprehensive Test of Basic Skills (CTBS) (the Reading Comprehension and Arithmetic Computation subtests) to a total population of 268 black children. The results suggested that examiner sex and anxiety were relevant factors influencing the test performance of black children, while examiner race was not.

132A. Passi, B.K., and Singh, Rachpal. Effect of Intelligence and Anxiety upon Serial Learning in Relation to Associatrional and Difficulty Level of Learning Task. Indian Journal of Psychometry and Education, Vol. 3, No. 1, pages 1-8, 1972.

The major and interactional effects of organismic variables (intelligence and anxiety) and task variables (association level and difficulty level) upon the learning of nonsense syllables (NSS) was studied. Subjects were 86 boys and 34 girls in the ninth grade. Tools used were (1) Raven's Standard Progressive Matrices, (2) Sarason's Test Anxiety Scale for Children (TASC), and (3) four lists each consisting of ten NSS on the consonant-vowel-consonant pattern. The learning criterion was the serial reproduction of NSS in the fifth trial. It was found through four-way factorial design analysis of variance that Intelligence Anxiety and interaction of Intelligence X Anxiety X Association X Difficulty had a significant effect upon learning of NSS.

133A. Pederson, Andreas M. Effects of Test Anxiety and Coacting Groups on Learning and Performance. Perceptual and Motor Skills, Vol. 30, No. 1, pages 55-62, February 1970.

The relationship between a personality variable and behavior in coacting groups was explored. Ninety-six male undergraduates differing in test anxiety (high, middle, low) were equally divided at random into two groups and given either a paired-associate learning task or two performance tasks (vowel cancellation and multiplication problems) under one of two conditions. Half the subjects worked in coacting groups of four subjects each while the remainder worked on the tasks alone. With the learning task, no significant differences were found between subjects who learned in groups and those who learned alone, regardless of anxiety level. With the performance tasks, the group situation was detrimental for both the high- and middle-anxious subjects while facilitative for the low-anxious subjects on the vowel cancellation task; however, no significant effects were found on the multiplication task.

134A. Prociuk, Terry J., and Breen, Lawrence J. Internal-External Control, Test Anxiety and Academic Achievement: Additional Data. Psychological Reports, Vol. 33, No. 2, pages 563-566, October 1973.

This study examined the relationship between the internal-external control and test anxiety constructs, and academic achievement. Rotter's Internal-External Control Scale, the Alpert-Haber Achievement Anxiety Test, and an Academic Internal-External Control Scale were administered to 87 undergraduates. Results indicate that subjects experiencing facilitating test anxiety had significantly higher grade point average than those experiencing debilitating test anxiety. The hypothesis that internals would be more successful academically than externals was not supported.

135A. Proger, Barton B., and others. Advance and Concurrent Organizers for Detailed Verbal Passages Used with Elementary School Pupils. Journal of Educational Research, Vol 66, No. 10, pages 451-456, July-August 1973.

A nonorganizer control group was compared with methods of advance organization (completion pretest, true-false pretest, sentence outline, and paragraph abstract), using 61 male and 51 female sixth graders as subjects. Covert involvement organizers (sentence outline and paragraph abstract) were significantly more effective for comprehension than were the overt response organizers (completion pretest and true-false pretest), but only for girls in the higher reading ability range. A second study with 80 subjects compared the presence or absence or advance organization (paragraph abstract) with the presence or absence of concurrent organization (underlining). The variable of predispositional levels of test anxiety showed that for low test-anxious subjects, a minimum amount of conceptual structuring or organization was most effective, while the opposite was true for high test-anxious subjects.

136A. Proger, Barton B., and others. Test Anxiety and Defensiveness Experimentally Induced by Four Conditions of Testing Arousal. Journal of Experimental Education, Vol. 39, No. 4, pages 78-83, Summer 1971.

The relationships among frequency of testing, arithmetic learning and retention, predispositional test anxiety, defensiveness against admission of test anxiety, and induced test anxiety were studied in 80 sixth graders who were given the Test Anxiety Scale for Children and the Defensiveness Scale for Children. Subjects were randomly assigned to four arousal conditions: tests every day, tests every other day, tests once a week, and daily practice. Teachers were randomly rotated daily. The study lasted five weeks, and an achievement posttest was given at the end of the study and again two weeks later. Induced test anxiety was measured at the end of each week. On both achievement posttests, the only significant difference was in favor of the daily test group over the weekly test group. Induced test anxiety was found to operate similarly to predispositional test anxiety.

137A. Quarter, Jack, and Marcus, Allan. Drive Level and Audience Effect: A Test of Zajonc's Theory. Journal of Social Psychology, Vol. 83, No. 1, pages 99-105, February 1971.

This study was designed to test Zajonc's theory that the presence of an audience during a digit span test causes an increment in drive level and a concomitant impairment of performance. Sixty-eight eighth graders were employed in a 2 X 2 design, with drive level as inferred from test anxiety scores, and presence of an audience, as independent variables. Although audience effect was significant, the interaction between drive level and audience present-audience absent did not materialize as predicted. It was posited that affiliative anxiety rather than test anxiety was contributing to a drive increment in the audience present condition. Data were reanalyzed after substituting birth order, a correlate of affiliative anxiety for test anxiety as an independent variable. The interaction was then obtained and reached significance.

138A. Ray, William J., and others. Effects of Test Anxiety on Acquisition, Retention, and Generalization of a Complex Verbal Task in a Classroom Situation. Journal of Personality and Social Psychology, Vol. 20, No. 2, pages 147-154.

Material drawn from Hullian learning theory was learned by 29 high and 30 low test-anxious undergraduate males. Half of the subjects were given an acquisition test trial after each of the acquisition study trials, and the other half were administered an acquisition test trial only after five acquisition study trials had been completed. Half of the subjects in each of these test trial conditions were asked to report rehearsals and readings on each information item. The giving of self-reports did not significantly affect performance in acquisition, nor was there a significant Test Anxiety X Report interaction. There were significant differences in performance due to test anxiety for the group tested after each acquisition study trial, but not for the group tested after five study trials. Controlling for original learning, there were significant differences due to test anxiety on both the retention and generalization tests.

139A. Raynor, Joel O. Relationships between Achievement-Related Motives, Future Orientation, and Academic Performance. Journal of Personality and Social Psychology, Vol. 15, No. 1, pages 28-33, May 1970.

Two studies with 69 male and 52 female undergraduates showed that (1) subjects high in need achievement and low in test anxiety received higher grades when they conceived a good grade in a particular college course to be related to their own future career success (high perceived instrumentality, PI) than when they did not (low PI), and (2) the difference in grades between those high and low in PI was larger for the high need achievement-low test anxiety group than for the low need achievement-high test anxiety group. When the average of grades for a semester and its rating of PI were considered, both motive groups tended to receive higher grades when high than when low in PI. The expected superiority in grades of the high need achievement-low test anxiety group was found only within high PI in one study and not at all in the other.

140A. Reid, Jackson B., and others. Computer-Assisted-Instruction Performance of Student Pairs as Related to Individual Differences. Journal of Educational Psychology, Vol. 65, No. 1, pages 65-73, August 1973.

Performance in computer-assisted instruction (CAI) in scientific notation and exponentiation for 81 pairs of undergraduate algegra students paired by sex and test anxiety was examined. Scores on the Scholastic Aptitude Test mathematics section, Sarason's Test Anxiety Scale, Sutter's CAI-Math Attitude Survey, and the Achievement via Independence, Dominance, Flexibility, and Sociability scales of the California Psychological Inventory were obtained. Low-anxiety and male pairs learned faster while mixed sex and anxiety-level pairs tended toward lesser achievement. High math aptitude pairs and high sociability pairs performed better. Achievement motivation, flexibility, and attitude toward CAI affected performance in certain subgroups. Dominance did not correlate significantly with performance.

141A. Rhine, W. Ray, and Spencer, Leilani M. Effects of Follow Through on School Fearfulness among Black Children. Journal of Negro Education, Vol. 44, No. 4, pages 446-453, Fall 1975.

The effects of Follow Through (FT), a program of comprehensive services for low-income children, were evaluated on school fearfulness and self esteem of 145 second- and third-grade black students in six midwestern and southern states. The Test Anxiety Scale for Children was administered and factor scores of Test Anxiety, Remote School Concern, Poor Self Evaluation, and Somatic Signs of Anxiety were compared with 148 non Follow-Through (NFT) control group pupils. Results indicated that FT boys and girls had less fear of being denied promotion at the year's end, less worry when a test was announced, and less worry following classroom tests. FT subjects also exhibited lower fearfulness scores than the NFT subjects on each of the four factor scales.

142A. Rosenzweig, Steven Jeffrey. The Effects of Examiner Anxiety Level, Student Test Anxiety Level, and Examiner-Student Sex Interaction, on Student Performance in a Group Test-Taking Situation. Ed.D. dissertation, Boston University School of Education, 1974. (UMI Order No. 74-20,461, 89 pages.)

Twelve examiners (three high-anxious males, three high-anxious females, three low-anxious males, and three low-anxious females) were randomly assigned to 36 classrooms from different fourth, fifth, and sixth grades in a regionalized school district. The examiners were administered the IPAT Anxiety Scale. They subsequently administered the Test Anxiety

Scale for Children, the Palmar Skin Sweat Test, and the Iowa Tests of Basic Skills to a total population of 754 children. A 4 X 4 analysis of variance was used to treat the independent variables of examiner-anxiety level, student test-anxiety level, student sex and examiner sex, and the dependent variables of subject performance in three achievement areas (vocabulary, reading, and mathematical problem solving). The results suggested that student test anxiety level, as measured by the Test Anxiety Scale for Children, is highly predictive of student test performance. Sex of student and examiner, and level of examiner anxiety were not predictive variables.

143A. Rowley, Glenn L. Which Examinees Are Most Favored by the Use of Multiple Choice Tests? Journal of Educational Measurement, Vol. 11, No. 1, pages 15-23, Spring 1974.

Scores were obtained from 198 ninth grade students on achievement motivation, test anxiety, testwiseness, and risk taking. Tests in mathematics and vocabulary were constructed in free response and multiple choice form, and administered to subjects in that order, with an interval of five weeks between administrations. Partial correlations were computed between scores on the multiple choice tests and achievement motivation, test anxiety, testwiseness, and risk taking, with free response scores partialed out. The partial correlations were corrected for the unreliability in the free response scores, and tested for significance. No partials involving achievement motivation and test anxiety were significant.

144A. Ryan, Frank L., and Macmillan, Donald L. Effects of Interruption during Social Studies Instruction on Learning Effectiveness and Efficiency. Journal of Educational Psychology, Vol. 61, No. 1, pages 27-32, February 1970.

Ninety-six fourth graders were divided into high- and low-anxiety groups on the basis of the Test Anxiety Scale for Children and randomly assigned to a Control (C), Interrupted (I), or Interrupted-with-a-Choice (I-Ch) group. All groups were instructed by using identical programmed social studies materials, with subjects of I and I-Ch being interrupted during the instructional periods. The three groups did not differ significantly in amount of material learned as measured by criterion test scores. In terms of learning efficiency (time taken to complete the programmed instruction), I and I-Ch were significantly less efficient than C. Treatment X Anxiety interaction effects were nonsignificant. Subjects, when grouped according to their choice of either continuing with the same programmed materials or switching to a new program did not differ significantly in locus of control, learning effectiveness, or efficiency.

145A. Sarason, Irwin G. Experimental Approaches to Test Anxiety: Attention and the Uses of Information. In Spielberger, Charles D. (Ed.) Anxiety: Current Trends in Theory and Research. Volume II. New York: Academic Press, 1972.

These studies describe a group of experiments that deal less with the conditions that impair the performance of high test-anxious persons and more with those that facilitate it. The results point to the conclusion that what distinguishes the high test-anxious individual are: (1) the manner in which he attends to the events of his environment; and (2) how he interprets and utilizes the information provided by these events. These characteristics may be viewed as habits or acquired attributes whose strength is influenced by specific types of person-environment encounters. Both the Test Anxiety Scale and the General Anxiety Scale are included.

146A. Sarason, Irwin G. Test Anxiety and Cognitive Modeling. Journal of Personality and Social Psychology, Vol. 28, No. 1, pages 58-61, October 1971.

After being measured for test anxiety, three groups of participants observed an experimenter, who served as a model, solve sample problems which they later were asked to solve for themselves. Opportunity to observe a model who verbalized while working on problems had a positive effect on performance.

147A. Sarason, Irwin G. Test Anxiety and Social Influence. Journal of Personality, Vol. 41, No. 3, pages 261-271, June 1973.

Success in problem solving was studied as a function of individual differences (assessed test anxiety) and pre-performance motivational instructions, and a condition under which the experimenter's task was to make the subject feel at ease in the experimental situation. Results indicate that low test-anxious experimenters were more effective as social influence agents than were high test-anxious experimenters. Low test-anxious subjects were superior in performance to high test-anxious subjects.

148A. Sarason, Irwin G. Test Anxiety and the Model Who Fails. Journal of Personality and Social Psychology, Vol. 22, No. 3, pages 410-413, June 1972.

Female undergraduates, differing in test anxiety, were given a verbal learning task following the opportunity to observe a model perform the same type of task. In Exp. I, groups differing in test anxiety differed in performance levels but not in their reactions to observing a self-derogatory model. In Exp. II, the model was not self-derogatory, but rather was authoritatively failed by the experimenter. Under this condition, high and low test anxiety showed opposite reactions. High test-anxiety scores were detrimentally affected by observing the failed model, while there was a facilitative effect for the low scorers. Results are interpreted in terms of differences between anxiety groups in their attention to specific situational cues.

149A. Sarason, Irwin C. Test Anxiety and the Self-Disclosing Coping Model. Journal of Consulting and Clinical Psychology, Vol. 43, No. 2, pages 148-153, April 1975.

Two hundred female undergraduates with high or low scores on the Test Anxiety Scale were selected. High- and low-anxiety groups performed a learning task after receiving either achievement-orienting or neutral instructions. Subjects were grouped further in terms of opportunities to observe the experimenter engage in self-presentation. Different groups were exposed to the experimenters serving as models who either (1) admitted to experiencing test anxiety but described ways of coping with it, and (2) admitted to test anxiety but did not indicate an ability to cope with it, or (3) did not admit to anxiety. There were two other conditions. In one, the experimenter talked about life on the university campus. The other was a control condition. While results show an overall superiority of low to high test-anxiety groups, there was a significant Test Anxiety Instructions interaction. A significant Test Anxiety Modeling Conditions interaction was due to the facilitative effect of exposure of high test-anxious subjects to an experimenter whose self-description dealt with the experience of test anxiety and adaptive ways of coping with it. Results are interpreted in terms of attentional blocks that characterize highly anxious individuals.

150A. Sarason, Irwin G. Test Anxiety, Attention, and the General Problem of Anxiety. In Spielberger, Charles D., and Sarason, Irwin G. Stress and Anxiety. Volume 1. Washington, D.C.: Hemisphere, 1975.

In past research on test anxiety, several factors have been investigated and manipulated: achievement-orienting instructions, reassuring instructions, task characteristics, time pressure, performance reports, and social learning variables. After reviewing this research, it is proposed that a person's level of test anxiety is, to a significant degree, a product of experiences that influence what he attends to in himself and the world. The highly test-anxious individual is one who is prone to emit self-centered interfering responses when confronted with evaluative conditions.

151A. Sarason, Irwin G., and others. Test Anxiety and the Effects of Being Interviewed. Journal of Personality, Vol. 40, No. 2, pages 242-249, June 1972.

Ninety-six male undergraduates, high and low scorers on the Test Anxiety Scale (TAS), performed a learning task following one type of interview experience and one type of instructional condition. The interviews differed with regard to content, either emphasizing one's reactions to tests or to a less personal topic. Subjects performed following either achievement-orientating or neutral instructions. Results show that the interview and test-taking reactions had a generally detrimental effect and that this was especially true for high TAS subjects. The less personal interview had a decidedly positive effect on high TAS subjects.

152A. Scherr, Stephen Stanley. Interaction of Reward, Punishment, and Test Anxiety on Children's Discrimination Learning. Ph.D. dissertation, University of Wyoming, 1975. (UMI Order No. 76-1204, 32 pages.)

Controlling for modality of reinforcement, incentive value of reinforcers, and contingency of feedback, this study investigated the interaction between reinforcement (reward, reward-punishment, and punishment) test anxiety, achievement, and sex of subject. A two-choice non-correction discrimination task using geometric figures was employed with automated equipment. Although results indicated the task was learned, effects of anxiety did not reach significance. The limited number of subjects (97 fifth- and sixth-grade boys and girls) employed appeared to substantially affect statistical results. Several trends in the direction of the hypotheses were noted despite insignificant results.

153A. Schubert, Alida Marie. Sex Differences in the Subjective Experience of Test Anxiety in School Age Children: The Effect of Test Anxiety and Sex of Subject on Self-Esteem, Fear of Negative Evaluation and Task Performance under Skill and Chance Conditions. Ph.D. dissertation, Hofstra University, 1975. (UMI Order No. 75-22,305, 119 pages.)

This investigation examined the relationships among test anxiety, self-esteem, fear of negative evaluation and the sex of the subject under conditions of varying degrees of perceived locus of control (skill versus chance). Specifically, it was proposed that the inconsistent research findings in the area of test anxiety are the result of a sex difference in the experience of test anxiety. Analysis of variance did not confirm the hypothesis that males experience test anxiety in terms of self-esteem whereas females experience it in terms of fear of negative evaluation.

154A. Sellinger, Stuart. An Investigation of the Effects of Organizational Climate and Teacher Anxiety on Test Anxiety of Elementary School Students. Ed.D. dissertation, New York University, 1971. (UMI Order No. 72-11,494, 140 pages.)

The purpose of this study was to determine if there were relationships among organizational climate of elementary schools, teacher anxiety, and student test anxiety. In order to identify school organizational climate, the OCDQ was administered to teachers in twenty-three elementary schools in New London County in the state of Connecticut. From this total of twenty-three schools, four closed-climate schools (two urban and two suburban) and four open-climate schools (two urban and two suburban) were randomly selected. The IPAT Anxiety Scale was then administered to classroom teachers, first to sixth-grade in each of the selected schools. A median IPAT Anxiety Scale score was computed, and three teachers scoring above the median and three teachers scoring below the median were randomly selected from each school. The TASC was then administered to the students of the teachers randomly selected. Results indicate that the test anxiety of elementary school students is affected by both organizational climate and teacher anxiety.

155A. Shrable, Kenneth, and Sassenrath, Julius M. Effects of Achievement Motivation and Test Anxiety on Performance in Programmed Instruction. American Educational Research Journal, Vol. 7, No. 2, pages 209-220, March 1970.

One hundred fourteen college students were administered Form RK of the Iowa Picture Interpretation Test, Mandler and Sarason's Test Anxiety Questionnaire, and an initial achievement test and were categorized as being either high (above the median) or low on each. Subjects then completed a programmed instruction task, and their performance on the following three dependent variables was assessed--time to complete the program, errors, and retention. The results theoretically most interesting were: (1) there were no significant differences in errors due to achievement motivation; (2) high test-anxious subjects had fewer errors than low test-anxious subjects; (3) the interaction effect of achievement motivation and test anxiety on errors was significant; (4) high achievement-motivated subjects had lower retention scores than low achievement-motivated subjects and (5) there was no reliable difference in retention due to test anxiety. Implications of these findings for the theory of achievement motivation and research on programmed instruction are discussed.

156A. Sieber, Joan E., and others. Effect of Memory Support on the Problem-Solving Ability of Test-Anxious Children. Journal of Educational Psychology, Vol. 61, No. 2, pages 159-168, April 1970.

The study used 40 fifth- and 96 sixth-graders to examine the effect of test anxiety and memory support on short-term memory processes in problem solving. A factorial design involving two levels of test anxiety and two memory conditions was used. Exp. I involved a puzzle: dependent measures were errors committed and recognition of potential errors. Exp. II involved concept formation: dependent measures were trials to criterion, and positive- and negative-exemplar memory errors. Significant main and interaction effects indicated that: (1) test anxiety interfered with short-term memory, and (2) memory support reduced differences between performance of high- and low-anxious subjects.

157A. Simons, Richard H., and Bibb, John J., Jr. Achievement Motivation, Test Anxiety, and Underachievement in the Elementary School. Journal of Educational Research, Vol. 67, No. 8, pages 366-369, April 1974.

Test anxiety (MAF) and the need for achievement (MS) were assessed in 41 male and 27 female underachievers in the fourth, fifth, and sixth grades. In addition, a resultant achievement motivation index (RAM) was formed by combining the previous variables with hope of success and fear of failure categories. Chi-square analysis revealed that test anxiety was a significant factor in underachieveing males but not in females. No significant differences were found for either sex with the need to achieve; however, the RAM index yielded significant differences for both sexes. Hope of success was significantly associated with high or superior academic achievement, while fear of failure was significantly associated with underachievement. Overall chi-square analysis indicated a significant sex difference in underachievement; there were more male underachievers than female.

158A. Siu, Ping Kee. The Relationship Between Motivational Patterns and Academic Achievement in Minority Group Children. Final Report. March 1972. 66 pages. ED 063 443.

This study was designed to reveal the differences in patterns of motivational variables and factors, and their differential effects upon academic achievement of Chinese and Puerto Rican early-grade school children. To determine motivation and achievement levels, 198 subjects, with 99 in each of two groups, were selected and tested by three motivational scales--Gumpgookies, Test Anxiety, and Achievement Responsibility Questionnaire--and an achievement test. Motivational patterns on three scales and on the five factors in Gumpgookies were analyzed across cultures. The motivation-achievement relationship was obtained by multiple regression analysis. The cross-cultural findings in this study showed that different cultures did provide differential impacts upon the development of achievement motives as well as upon the association patterns between motivation and performance.

159A. Smith, Carol A., and Morris, Larry W. Effects of Stimulative and Sedative Music on Cognitive and Emotional Components of Anxiety. Psychological Reports, Vol. 38, No. 3, Pt. 2, pages 1187-1193, June 1976.

Sixty-six college students in a psychology class took their first examination of the semester, a multiple-choice test, under conditions of stimulative music, sedative music, or no music. One of the following types of music was played during each section of the test for the two treatment groups: classical, jazz and blues, country-bluegrass, easy listening, and rock and roll. Before and after each of the five sections of the test, subjects responded to a five-item questionnaire designed to assess (1) worry about the test, (2) emotionality or physiological-affective arousal, (3) ability to concentrate, (4) expectancy of performance, and (5) like or dislike of the music. Stimulative music significantly increased both worry and emotionality while sedative music had no effect on anxiety relative to that of the control group. Test performance was not affected by the music. It is suggested that future research consider the usefulness of stimulative music in therapeutic settings.

160A. Smith, Robert L., and Troth, William A. Achievement Motivation: A Rational Approach to Psychological Education. Journal of Counseling Psychology, Vol. 22, No. 6, pages 500-504, November 1975.

This study investigated the achievement motivation training component of psychological education. The subjects were 54 late-adolescent pupils. the experimental training program had as its objectives an increase in academic achievement motivation, internal feelings of control, and school performance, and a reduction of test anxiety. Results indicated significant differences between the experimental and control groups.

161A. Smith, Ronald E., and others. Humor, Anxiety, and Task Performance. Journal of Personality and Social Psychology, Vol. 19, No. 2, pages 243-246, August 1971.

A course examination was administered under standard classroom conditions to 215 undergraduates differing in level of test anxiety. Approximately half the subjects received a form of the examination containing one-third humorous test items, while the remainder received a nonhumorous form of the examination. High test-anxious subjects, receiving the nonhumorous form, performed (1) significantly more poorly than low or moderate test-anxious subjects, and (2) at a significantly lower level than the high-anxiety group that received the humorous form. Results lend support to the hypothesis that exposure to humor may reduce anxiety and thereby affect task performance.

162A. Snyder, C.R. Amount of Body Movement as an Indicant of Task-Irrelevant Test Anxious Responses. Journal of Psychology, Vol. 80, No. 1, pages 147-150, January 1972.

Overall physical movement was measured by observing 251 male undergraduates, without their knowledge, as they performed a complex verbal learning task in a classroom-type situation. It was found that subjects self-reported test anxiety, as measured by a modified version of the State-Trait Anxiety Inventory, exhibited small and nonsignificant correlations with amount of observed body movement throughout the learning situation. It was concluded that amount of body movement is not indicative of task-irrelevant test-anxious responses, suggesting that the test-anxious response occurs principally at the internal cognitive level rather than at the overt physical level.

163A. Snyder, C.R., and Katahn, Martin. Comparison Levels, Test Anxiety, Ongoing Affect, and Complex Verbal Learning. American Journal of Psychology, Vol. 86, No. 3, pages 555-566, September 1973.

An earlier experiment was replicated in modified form by giving 90 male undergraduates comparison-level feedback at the mean achieved by previous subjects on the same task (chosen for its positive correlation with performance in actual classroom learning) or at one standard deviation above or below that mean. There was a significant trend for performance to improve with decreasing comparison levels. Self-reported negative affect accurately reflected test anxiety, but test anxiety did not significantly relate to performance.

164A. Snyder, C.R., and Ray, William J. Observed Body Movement in the College Test-Taking and Situation and Scores on the Scholastic Aptitude Test. Perceptual and Motor Skills, Vol. 32, No. 1, pages 265-266, February 1971.

A greater observed body movement in the test-taking situation was significantly related to lower verbal Scholastic Aptitude Test (SAT) scores of undergraduates. Observed movement did not, however, relate significantly to either math SAT scores or test anxiety as measured by the State-Trait Anxiety Inventory. Furthermore, the negative observed movement-verbal SAT relationship was not mediated by test anxiety.

165A. Solkoff, Normal. Race of Experimenter as a Variable in Research with Children. Developmental Psychology, Vol. 7, No. 1, pages 70-75, July 1972.

Each of eight female examiners, four black and four white, administered the WISC and Sarason's Test Anxiety Scale to 14 black and 14 white eight- to eleven-year-olds. There was an equal number of boys and girls in each racial group. The subjects' race was significant for all of the WISC subtests, with the exception of Comprehension Arithmetic and Coding, as well as for the Verbal, Performance, and Full Scale IQs. In all cases, the black subjects scored lower than the whites. Race of examiner had a significant effect on the Comprehension and Picture Completion subtests, and on the Verbal, Performance, and Full Scale IQs, with the black examiners producing the highest scores. There was a significant main effect of subjects' sex on three subtests: boys obtained higher scores on Picture Completion and Object Assembly while girls were higher on Coding. Finally, a significant Race of Child X Race of Examiner interaction occurred on only the Information subtest. There were no significant main effects or interactions in relation to the anxiety measure.

166A. Spielberger, Charles D., and others. The Nature and Treatment of Test Anxiety. In Zuckerman, Marvin, and Spielberger, Charles D. (Eds.) Emotions and Anxiety: New Concepts, Methods, and Applications. Hillsdale, N.J.: Lawrence Erlbaum, 1976.

Past research on test anxiety is reviewed, and different theories are compared and integrated. Test anxiety is then discussed in terms of Spielberger's trait-state theory of anxiety. Methods of treatment are discussed after describing and reviewing several instruments commonly used to measure test anxiety.

167A. Stanton, H.E. The Effect of Music on Test Anxiety. Australian Psychologist, Vol. 8, No. 3, pages 220-228, November 1973.

This is a study of music to improve the examination performance of test-anxious subjects. The literature was reviewed and support was found for the assumption that music may reduce tension. The Test Anxiety Scale (TAS) was used to match subjects consisting of primary, secondary, and university students. Quieter movements from several of Mozart's symphonies were played in the experimental testing rooms. Results of Exp. I indicate no main or interaction effects for either primary or secondary students. For the university students, significant interaction between test-anxiety level and presence or absence of music was observed. Findings show that high-anxiety students achieved superior results when exposed to background music. In Exp. II a standard task was set for all subjects, rather than the normal examinations, as was the case in the first experiment. Only two anxiety groups were used--subjects whose TAS scores fell either above or below the median. The extreme groups were eliminated. Results indicate that both secondary and university students with above-the-mean anxiety scores received higher scores on the task with, as opposed to, without music.

168A. Stanton, H.E. Music and Test Anxiety: Further Evidence for an Interaction. British Journal of Educational Psychology, Vol. 45, No. 1, pages 80-82, February 1975.

The existence of an interaction between music and anxiety was investigated, with the hypothesis that highly test-anxious subjects would perform better in a testlike situation when background music was present than when the more usual condition of silence prevailed. Sarason's Test Anxiety Scale was completed by 162 final-year Diploma of Education and third-year B.Ed. students. Three experimental conditions were used in which subjects were required to study a 1,500-word passage for 10 minutes. The conditions were silence, music as the subjects entered, and music throughout. The second group showed the highest scores on a test of the material learned.

169A. Stanton, H.E. The Relationship Between Teachers' Anxiety Level and the Test Anxiety Level of their Students. Psychology in the Schools, Vol. 11, No. 3, pages 360-363, July 1974.

This study investigated the effect that the type of classroom (open vs. closed) and the level of teacher anxiety has on the level of student anxiety. Subjects were 1,047 Australian children and 32 sixth- and seventh-grade teachers. The Trait Anxiety Scale of the State Trait Anxiety Inventory and the Test Anxiety Scale for Children were used to assess levels of anxiety. Results indicate that anxious teachers did not necessarily produce anxious students.

170A. Steinke, Joann Mary. Paired-Associate Learning as a Function of Test Anxiety and Audience Effects. Ph.D. dissertation, Northern Illinois University, 1973. (UMI Order No. 73-20,564, 138 pages.)

The present study investigated the effects of an individual difference variable, test anxiety, and five observer conditions--alone, stranger-observer, positive, neutral, and exposure--on performance in a paired associate transfer task. The subjects were 50 high and 50 low test-anxious females selected on the basis of performance on Sarason's Test Anxiety Scale. The experimental tasks consisted of: (1) an interview or completion of a questionnaire on study habits; (2) learning a training and a transfer list, each consisting of 15 CVC-adjective paired associates, under one of the observer conditions. Postexperimental tasks involved completion of a rating scale on subjective reactions to the observer and of questionnaires evaluating (1) the difficulty of the word pairs and (2) the interference-facilitative properties of the word pairs. Results indicated that on first-list learning low test-anxious subjects performed significantly better than high test-anxious subjects in the neutral condition. There was no significant difference between anxiety groups in the positive condition. Low test-anxious subjects performed better in the positive than in the neutral condition.

171A. Stellwagon, Carol Emma. A Consideration of Test Anxiety, General Anxiety, and Grading Procedures in Some College Level Physical Science for Non-Science Classes. Ph.D. dissertation, University of Iowa, 1972. (UMI Order No. 72-26,745, 151 pages.)

The study investigated two of the interactive elements of the educational process; student personality and teacher behavior. The attributes of student personality chosen for special consideration were test anxiety and general anxiety. The teacher behavior selected for consideration was grading procedure. Of special interest was the possibility of interactions between test anxiety and grading procedure. Approximately 60 college freshman students, prospective elementary school teachers, in a turn-taught science course using PSNS (Physical Science for Non-Science Students). Materials were stratified on the basis of Alpert-Haber Test Anxiety Test scores and the second order general anxiety factor of the 16 PF. They were then randomly distributed to three grading groups: pass-fail, conventional, and conventional with an unearned bonus of 10 percent of the number of points missed on the exams. In general, although differences were not always significant, the pass-fail student performed similarly to the bonus students and unlike the conventionally graded students.

172A. Stuart, Irving R., and Bronzaft, Arline L. Perceptual Style, Test Anxiety, and Test Structure. Perceptual and Motor Skills, Vol. 30, No. 3, pages 823-825, June 1970.

The relationships between perceptual style, test anxiety, and test structure in 95 undergraduates was studied. It was hypothesized that perceptually field-dependent subjects would score higher on anxiety and perform relatively poorly on unstructured, essay-type examinations than field-independent subjects. This hypothesis was not confirmed. Explanation centered around the lack of differentiation in perceptual style among subjects as well as probable faulty equipment.

173A. Suthithatip, Surin. The Effect of Test Anxiety upon the Feedback of Self-Ideal Discrepancy Score. Ed.D. dissertation, University of Northern Colorado, 1971. (UMI Order No. 72-03304, 89 pages.)

This study attempted to examine the effect of knowing self-ideal discrepancy scores on anxiety scores. An Index of Adjustment and Value (IAV) was used as a measure of self-ideal discrepancy, and the Test Anxiety Scale measured the anxiety level. After administering these tests, 44 subjects were chosen for classification as either (1) High Self-Ideal Discrepancy/High Anxiety, or (2) Low Self-Ideal Discrepancy/Low Anxiety. Subjects from these two groups were randomly placed in the experimental group and control group. The experimental group received feedback on its self-ideal discrepancy scores, and the Test Anxiety Scale was again administered to the whole population. Hypotheses and results are discussed.

174A. Szetela, Walter Frank, Jr. The Effects of Test Anxiety and Success-Failure on Mathematics Performance in Grade Eight. Ed.D. dissertation, University of Georgia, 1970. (UMI Order No. 71-13,135, 166 pages.)

The purpose of this study was to determine if test anxiety as measured by the Test Anxiety Scale for Children (TASC) was a disruptive factor in the learning of mathematics and to determine if mathematics anxiety and mathematics achievement were affected by success or failure experience. Main effects of test anxiety and success-failure on mathematics achievement, and mathematics anxiety and interactions among test anxiety intelligence, and success-failure were investigated. Sex differences were also observed.

175A. Szetela, Walter. The Effects of Test Anxiety and Success/Failure on Mathematics Performance in Grade Eight. Journal for Research in Mathematics Education, Vol. 4, No. 3, pages 152-160, May 1973.

A mathematics lesson and success-failure treatment were presented to 309 eighth graders grouped by three levels of test anxiety. Data were analyzed for 192 subjects and the effects of success-failure on measures of mathematics performance and mathematics test anxiety were not significant. Analysis of covariance with intelligence as a covariate indicated that test anxiety was a marginally significant factor in mathematics learning. Mathematics test anxiety was highly related to test anxiety, and girls exhibited significantly higher mathematics test anxiety than boys. When mathematics test anxiety was treated as a quadratic function of test-anxiety levels, there was a significant Sex Test Anxiety interaction due to the tendency of girls to be significantly more test-anxious than boys at the high test anxiety level.

176A. Terry, Roger L., and Isaacson, Randall M. Item Failure and Performance on Subsequent Items of an Achievement Test. Journal of Psychology, Vol. 77, No. 1, pages 29-32, January 1971.

This study tested the hypotheses (1) that failure of a test item increases test anxiety, which in turn leads to error perseverance, and (2) that the detrimental effects of failure are greater for highly anxious students. Sixteen undergraduates received Form A of an 80-item multiple choice exam, and 15 received Form B. Subjects, especially more anxious ones, were more likely to miss a test item when it immediately followed an inevitably failed question than when it preceded that question.

177A. Tobias, Sigmund. Distraction, Response Mode, Anxiety, and Achievement in Computer Assisted Instruction. June 1972. 46 pages. ED 071 435.

The effects of distraction on achievement are particularly important in realtion to the acceptability of computer-assisted instructional materials. In addition to these effects, various levels of anxiety may also be deleterious to the learner. In order to measure the effects of both distraction and anxiety, 121 subjects were used in a two-by-two design experiment, defined on one hand by distraction and non-distraction to reading the program. The effects of the conditions and their interactions with test anxiety were determined by using multiple linear regression analysis. The only significant effect on instruction was that constructing responses led to higher achievement than merely reading the material. State anxiety was higher for all groups in which an overt response was required. The findings suggest that decrements in achievement attributable to distraction are more accurately interpreted in motivation terms.

178A. Tobias, Sigmund, and Duchastel, Phillipe C. Behavioral Objectives, Sequence, and Anxiety in CAI. Instructional Science, Vol. 3, No. 3, pages 231-242, October 1974.

A total of 117 subjects were randomly assigned to a group either receiving or not receiving instructional objectives, and to a logical or random instructional sequence. Performance measures and test and state anxiety scores were obtained. Regression analysis indicates that, as expected, objectives had no effect, whereas the logical sequence reduced program errors and increased achievement. Test anxiety was related to program errors, but not to achievement. Expected interactions among objectives, sequence, and anxiety were not significant.

179A. Tobias, Sigmund, and Duchastel, Phillippe C. Behavioral Objectives, Sequence, and Aptitude Treatment Interactions in CAI. August 1972. 34 pages. ED 071 443.

The interaction of behavioral objectives, sequence order, and test and state anxiety were investigated. The study had four purposes: (1) to examine the effects of objectives on achievement; (2) to investigate the effects of sequencing; (3) to study the interaction of availability of objectives and sequence; (4) to study the effects of objectives and frame sequence on both test and state anxiety. The results indicated that there were no main effects attributed to objectives, and that scrambling frame sequence did reduce achievement and increase program errors. It was expected that providing students with program objectives would have no effect in the logically organized program, but that achievement of students receiving objectives and a scrambled program should be facilitated. This interaction was not supported by the results. As expected, attitudes toward the program were more positive among students taking the logically sequenced material compared to those receiving the scrambled sequence. The fact that state anxiety was unaffected by either objectives or sequence was unexpected.

180A. Tobias, Sigmund, and Hedl, John J., Jr. Test Anxiety: Situationally Specific or General? June 1972. 27 pages. ED 058 853.

This paper reports two experiments whose purpose was to relate two bodies of research on anxiety: test and trait-state anxiety. It was reasoned that state anxiety measures obtained in an evaluation testing condition should be more similar to test anxiety than state anxiety measures obtained in non-evaluative situations such as a game in Study I or an instructional setting in Study II. The subjects were sixty students drawn from an undergraduate educational psychology course. The results of both studies failed to confirm the hypothesis. Test anxiety was less sensitive to fluctuations of evaluative stress than state anxiety, and more closely related to general trait anxiety. The authors discussed a number of implications of these results which appeared to be of interest to anxiety theory in general. Both studies indicated that test anxiety is more nearly a trait measure than a state measure.

181A. Tobias, Sigmund, and others. Latency and Test Anxiety. Tech Memo Number 56. August 1972. 20 pages. ED 072 653.

This study sought to test the interpretation that high test anxiety subjects performed more poorly on difficult material because they divided their attention between personally relevant and task relevant concerns to a greater degree than did low-anxiety individuals. It was reasoned that such division of attention ought to require more time for high-anxiety students on difficult items and hence should result in higher response latency. A mathematical aptitude test containing both easy and difficult items was administered to 80 subjects. Analysis of variance indicated that high-anxiety students performed more poorly on the difficult sections than low-anxiety individuals. However, the latency data failed to confirm the hypotheses.

182A. Tobias, Sigmund, and others. Response Time and Test Anxiety. Psychological Reports, Vol. 34, No. 2, pages 479-485, April 1974.

This study sought to test the interpretation that high test-anxiety students perform more poorly on difficult material because they divide their attention between personally relevant and task-relevant concerns more than low-anxiety individuals. It was reasoned that such division of attention requires more time for high-anxious students on difficult items and therefore results in longer response latencies. Sarason's Test Anxiety Scale, the State-Trait Anxiety Inventory, and a mathematics test containing both easy and difficult items were administered to 78 undergraduates. Results indicate that high-anxious subjects performed more poorly on the difficult items than low-anxious subjects. High-anxious subjects had higher levels of state anxiety during the testing than the low-anxious subjects. The latency analysis, however, failed to confirm the hypotheses.

183A. Towle, Nelson J., and Merrill, Paul F. Effects of Anxiety Type and Item Difficulty Sequencing on Mathematics Aptitude Test Performance. Tech Memo Number 46. April 1972. 45 pages. ED 070 284.

Effects of item difficulty sequencing on performance and on post state anxiety were investigated using a timed mathematics aptitude test. The subjects were randomly assigned to a random, easy-to-hard, or hard-to-easy difficulty sequence group. The hard-to-easy sequence group performance was significantly lower than either the random or easy-to-hard sequence groups. Though not statistically different, the mathematics aptitude test scores of four achievement anxiety types grouped using the Achievement Anxiety Test, and levels of state anxiety provoked by the three difficulty sequences, were in the predicted direction.

184A. Towle, Nelson J., and Merrill, Paul F. Effects of Anxiety Type and Item-Difficulty Sequencing on Mathematics Test Performance. Journal of Educational Measurement, Vol.12, No. 4, pages 241-249, Winter 1975.

This paper investigates the effects of three different item-difficulty sequenced test forms on performance, and the anxiety-type (debilitating or facilitating) by item-difficulty sequence interaction. The assumption of Munz and Smouse that item-difficulty sequences are progressively more arousing or provoking in the order: random, easy-to-hard, hard-to-easy was also studied.

185A. Tryon, Warren W., and others. Test Anxiety as a Function of Academic Achievement, Grade Level, and Sex in Ghetto Elementary School Children. Paper presented at the annual meeting of the American Psychological Association (Montreal, 1973).

The Test Anxiety Scale for Children was administered to 246 third- to sixth-grade children from a South Bronx ghetto district in New York City. Scores were related to the subject's grade placement, academic achievement, and sex. It was found that high achievers increased, low achievers decreased, and middle achievers remained unchanged in test anxiety with increased grade placement. Females were higher in test anxiety than males. High-achieving males were low in test anxiety while high-achieving females were high in test anxiety.

186A. Vest, Donald Wade. The Effects of Test Anxiety on Achievement Examinations Employing a Penalty for Guessing Factor in Scoring. Ph.D. dissertation, University of Kansas, 1974. (UMI Order No. 75-17,693, 187 pages.)

This investigation examined the relationship of academic ability and test anxiety to measures of test behavior (number of test alternatives attempted) and performance (corrected score) on a series of examinations using a "penalty for guessing" in scoring. This rather unorthodox scoring procedure was assumed to provide a stressful, evaluative condition where the effects of self-reported test anxiety could be studied over a sequence of examinations. On the basis of scores on the Achievement Anxiety Test and the composite score on the American College Testing Program (ACT) examination, four groups were formed of subjects ranked either high or low on these variables. The sample was composed of 142 males and females and was drawn from a class entitled, Introduction to Philosophy at Washburn University of Topeka, Kansas. The criterion measures were the number of test item alternatives attempted on a multiple-choice, multiple-answer and true-false test, and the corrected score that was derived by subtracting the total number of incorrect attempts from the total number of correct ones. The effects of the three independent variables of ability (high-low), test anxiety (high-low) and trials (four examinations) were investigated, using the dependent measures of attempts and corrected score.

187A. Vidler, Derek. Convergent and Divergent Thinking, Test-Anxiety, and Curiosity. Journal of Experimental Education, Vol. 43, No. 2, pages 79-85, Winter 1974.

Interrelationships between two motivational variables--test-anxiety and curiosity, and two cognitive variables--convergent and divergent thinking, were tested using the measures of convergent and divergent thinking of J.P Guilford and two self-report true-false scales of test-anxiety and curiosity.

188A. Vidler, Derek Charles. The Relationship Between Convergent and Divergent Thinking, Test-Anxiety and Curiosity. Ph.D. dissertation, Columbia University, 1972. (UMI Order No. 72-31,238, 77 pages.)

The present study investigated the relationship between two cognitive variables--convergent and divergent thinking, and two motivational variables--test-anxiety and curiosity. Six tests of convergent thinking and six tests of divergent thinking, all of semantic content, were used to measure the six products of convergent and divergent thinking, as outlined in the Structure of Intellect model. Sarason's Test Anxiety Scale and Chin's Curiosity Scale were combined with items from the Rokeach Dogmatism Scale in an effort to conceal the purpose of the study. The complete set of tests and the questionnaire were administered during the fall semester of 1971 to 212 students--175 females and 37 males, enrolled in introductory courses in education at a college of the City University of New York. Statistically significant correlations were found for each of the relationships predicted. Both convergent and divergent thinking correlated negatively with test-anxiety and positively with curiosity, though the correlations were relatively low in all cases. Thus, the hypotheses of the study were to some extent supported, and evidence of an interaction between cognitive and motivational variables was provided. However, the relationships were considered to be sufficiently modest as to be of little explanatory importance and to warrant a degree of caution in their interpretation.

189A. Vidler, Derek C., and Karan, Val E. A Study of Curiosity, Divergent Thinking, and Test-Anxiety. Journal of Psychology, Vol. 90, No. 2, pages 237-243, July 1975.

A review of the literature suggests that curiosity is positively related to divergent thinking and negatively related to test anxiety. To test this hypothesis, a study was conducted with male and female ninth and tenth graders (n=67), eleventh and twelfth graders (n=67), and college undergraduates (n=69). Curiosity was measured by an 80-item self-report scale and an adjective checklist; test anxiety by a 37-item self-report scale; and divergent thinking by two verbal paper-and-pencil tests. Results show that both measures of curiosity were positively related to divergent thinking in all three groups studied, but that test anxiety was not significantly related to either curiosity or divergent thinking. Differences in performance by the three groups of subjects are discussed.

190A. Walker, Ronald E., and others. The Effect of Subjectively Reported Anxiety on Intelligence Test Performance. Psychology in the Schools, Vol. 7, No. 3, pages 241-243, July 1970.

This paper examines the effect of experimentally induced anxiety on the performance of the first five verbal subtests of the Wechsler Adult Intelligence Scale given to 79 undergraduate students. A response to the question "How did you feel while you were being tested?" was used as an indicator of anxiety. None of the mean differences between groups (control-experimental; male-female) was significant.

191A. Walsh, Richard P. Comment on the Lin and McKeachie Article. Psychological Reports, Vol. 29, No. 2, pages 601-602, October 1971.

Lin and McKeachie's article, which found that, contrary to previous studies by the author, there were no significant sex differences in test anxiety in their subjects, is considered. The use of different tests for test anxiety and possible population differences is discussed.

192A. Warner, Ralph S., and Kauffman, James M. Effect of Prearrangement of Testing on Anxiety and Performance of Second- and Sixth-Grade Boys. Psychology in the Schools, Vol. 9, No. 1, pages 75-78, January 1972.

Twenty second-grade and 20 sixth-grade boys of average intelligence and expected age and academic achievement who had not previously been seen for individual psychological evaluation were assigned randomly to one of two groups. Group P was administered the Slosson Intelligence Test (SIT), the Wide Range Achievement Test (WRAT), and the Test Anxiety Scale for Children (TASC) three days after the testing session was arranged with the child. Group I was administered the same tests in an impromptu session, without prearrangement. There were no significant differences between groups for sixth-grade subjects. For the second-grade subjects no significant differences were found between groups for the WRAT, but subjects in Group P scored significantly higher than Group I on the SIT and the TASC. The results suggest that prearrangement of the testing session may be advisable for younger subjects when intelligence testing is planned.

193A. Weijola, Merrill Joseph. The Interrelationships among Grade Point Average, the Manifest Anxiety Scale, the Test Anxiety Questionnaire, and Perceived Testing Situation Stimuli, Rationalizations, and Behavior Responses. Ed.D. dissertation, University of Southern California, 1974. (UMI Order No. 74-23,616, 147 pages.)

The study was designed to demonstrate the basis for the low magnitude, positive relationship between the Manifest Anxiety Scale (MAS) and the Test Anxiety Questionnaire (TAQ). This study investigated the interrelationships among official lower division grade point average, the MAS, and TAQ, and developed scales of perceived testing situation anxiety eliciting stimuli (Stimuli Scale), perceived rationalizations used to reduce or mitigate against test anxiety (Rationalization Scale), and perceived behavior responses to the testing situation (Behavior Scale). In addition, this study explored sex differences within the six study variables. The stratified random sample used in this study was drawn from classes representing required upper division education courses in an urban California state university. The sample consisted of 100 males and 100 females, randomly selected from a population of 900 potential subjects. The conclusions from this study suggested that the basis for the positive relationship between the MAS and TAQ was a function of both scales assessing testing situation stimuli and behavior responses. The basis for the low magnitude of the relationship was a function of the TAQ measuring the rationalizations used to mitigate these stimulus-response interactions.

194A. Weiner, Bernard, and Potepan, Penelope A. Personality Characteristics and Affective Reactions Toward Exams of Superior and Failing College Students. Journal of Educational Psychology, Vol. 61, No. 2, pages 144-151, April 1970.

Test anxiety, achievement orientation, and intellectual achievement responsibility (internal vs. external locus of control) were assessed among 197 undergraduates who had either failed or performed excellently on a midterm exam. The affect which they associated with the final exam was reported at various times following the midterm feedback. Data revealed that the measured personality dimensions discriminated succeeding from failing males, but did not differentiate between corresponding female groups. Correlational analysis also yielded systematic relationships between the individual difference variables. Self-report ratings revealed that the change in level of fear as the exam date approached was related to the level of achievement needs. Data were interpreted using Miller's model of conflict.

195A. Weiner, Michael J., and Samuel, William. The Effect of Attributing Internal Arousal to an External Source upon Test Anxiety and Performance. Journal of Social Psychology, Vol. 96, No. 2, pages 255-265, August 1975.

Based on Schacter's theory of emotions as cognitive labels, it was hypothesized that (1) among high test-anxious subjects (Albert-Haber Achievement Anxiety Test), those who attribute internal arousal to a pill (actually a placebo) will be less anxious and able to perform better on an anagram task than those who attribute their symptoms to the threatening tests; and (2) low test-anxious subjects should have their performance only slightly, if at all, affected by the attribution of arousal to a placebo, since their arousal level might not be sufficient for relabeling to occur. Thirty-three male and 45 female undergraduates were assigned to three groups which received either a white pill (pill attribution condition), a pink pill (pill-no attribution conditon), or no pill (control). Subjects then completed the test anxiety measure, were told the "effects" of the two types of pills, completed checklists about the "effects" they might be feeling, and completed an anagram task and two other filler tests. The hypotheses were supported somewhat, but not strongly, by the anagram data.

196A. Weinstein, Rhona Strasberg. Reading Groups and Teacher-Child Interaction in the First Grade Classroom. Ph.D. dissertation, Yale University, 1973. (UMI Order No. 74-11,909, 113 pages.)

The purpose of the investigation was to examine the effects of within-classroom grouping for reading instruction on patterns of teacher-child interaction and on pupil measures of reading achievement, peer acceptance, and test anxiety. The results indicated that relatively fixed membership in reading groups did not emerge until the end of the first month of school. The number of reading group changes implemented in each classroom during September averaged 7.3 compared to a rate of 1.8 changes in succeeding months. For children who remained as assigned, membership in the high reading group was accompanied by a significant decrease in test anxiety and apparent gain in peer value. Opposite trends were documented for continued membership in the low reading group. In addition, the gap in reading grade placement, peer acceptance and test anxiety between members of the highest and lowest reading groups widened significantly as the school year progressed.

197A. Wilson, Shirley Byrd. Self-Esteem and Test Anxiety in Black Inner-City Junior High Youngsters. Ph.D. dissertation, University of Pittsburgh, 1973. (UMI Order No. 74-16,540, 104 pages.)

This study sought to test the hypothesis that unfavorable self-esteem is associated with high anxiety in situations of test taking in school. definition of self-esteem given by Coopersmith was adopted, and the Coopersmith Self-Esteem Inventory was used to assess the subjects' self-esteem. Sarason's Test Anxiety Scale for Children was used to measure anxiety. The population consisted of students in seventh- through ninth-grade in one inner-city junior high school located within a low socioeconomic neighborhood. A sample composed of 51 seventh graders, 53 eighth graders and 37 ninth graders was used. A significant difference between test anxiety for males and females was observed, with males scoring lower on the test anxiety scale. An analysis of variance revealed that there was no significant difference between the self-esteem means for students in seventh, eighth, and ninth grades. However, there was a difference between anxiety score means for those students. Correlational analysis, done by grade and sex, revealed a significant negative relationship between self-esteem and test anxiety. No developmental trends in the relationship between self-esteem and test anxiety were observed when subjects were compared by sex at each grade level or when subjects were separated by sex and comparison made between grade levels.

198A. Wine, Jeri Dawn. Investigation of an Attentional Interpretation of Test Anxiety. Ph.D. dissertation, University of Waterloo, 1970.

The investigation concerns four studies which were designed to test the hypothesis that directing the highly test-anxious subject's attention to task-relevant variables and away from self-relevant variables will effect performance improvement. Chapter II reported tests of the hypothesis in three laboratory studies. Instructions designed to direct attention to variables relevant to task performance were compared to instructions designed to elicit self-evaluative thoughts, or to instructions which did not explicitly direct subjects' attention. Chapter III reported a treatment study which was a further test of the hypothesis. Test-anxious subjects were given six hours of training in which they worked on tasks, with instructions to attend only to the tasks, and to inhibit self-relevant thinking. It was suggested in conclusion that the attentional interpretation of test anxiety has promising implications for treatment of test-anxious persons. Moreover, the consistent finding in the laboratory studies as well as the treatment study that task-attending training resulted in reduction in test anxiety suggested an attentional definition of test anxiety.

199A. Wine, Jeri. Test Anxiety and Direction of Attention. Psychological Bulletin, Vol. 76, No. 2, pages 92-104, August 1971.

The literature reviewed suggests an attentional interpretation of the adverse effects that test anxiety has on task performance. During task performance, the highly test-anxious person divides his attention between self-relevant and task-relevant variables, in contrast to the low test-anxious person who focuses his attention more fully on the task. This interpretation was supported by literature from diverse areas suggesting that: (1) highly anxious persons are generally more self-preoccupied than are people low in anxiety; (2) the self-focusing tendencies of highly test-anxious persons are activated in testing situations; (3) those situational conditions in which the greatest performance differences occur are ones which elicit the self-focusing tendencies of highly test-anxious subjects and the task-focusing tendencies of low-anxious subjects; (4) research examining the relationship between anxiety and task variables suggests that anxiety reduces the range of task cues utilized in performance; and (5) "worry," an attentionally demanding cognitive activity, is more debilitating to task performance than is autonomic arousal. Treatment and research implications of this attentional interpretation of test anxiety are briefly discussed.

200A. Wine, Jeri D. Test Anxiety and Helping Behaviour. Canadian Journal of Behavioural Science, Vol. 7, No. 3, pages 216-222, July 1975.

Children's helping behavior was examined as a function of test anxiety level and evaluative conditions. After taking the Test Anxiety Scale for Children, 72 fourth graders completed a task under either evaluative or nonevaluative conditions, and then were given an opportunity to help a younger child with a sorting task. Examination of a significant interaction between anxiety and evaluation revealed that highly test-anxious subjects were most sensitive to the evaluative manipulation, being less likely to help in the evaluative than in the nonevaluative condition. Helping behavior of less anxious subjects did not vary with evaluation. It is suggested that relationships between personality variables and helping behavior should be examined only in combination with clearly specified situational variables.

201A. Wine, Jeri Dawn. Test Anxiety and Self-Attention. August 1974. 30 pages. ED 096 594.

This paper describes an ongoing treatment program based on a cognitive-attentional interpretation of test anxiety. The primary goal is to train students to eliminate self-relevant thinking, and increase task-relevant thinking, that is, to turn their attention from the self to the demands of the external situation. Three studies are described. The first involved 16 university students in three treatment conditions (Task-Attending, Task-Attending and Relaxation Training, and Self-Attending). Results indicate that training in task-attending, with or without relaxation training, was beneficial to students' anxiety levels. The second study involved 48 test-anxious third and fourth graders. Sixteen children were placed in a task-attending training group, another 16 were in a placebo treatment group,while still another 15 were in a no-treatment control group. There was a reduction in test anxiety level for all groups, with the group given task-attending training showing the most improvement and the no-treatment group the least. The third study launched in fall 1973 and continuing through spring 1975 involved an ongoing project with university students, and examined effects of exposure to modeling video tapes, and extensive task practice. The author believes test anxiety is only one aspect of a more general personality disposition of evaluation anxiety.

202A. Wittmaier, Bruce C. Test Anxiety and Study Habits. Journal of Educational Research, Vol. 65, No. 8, pages 352-354, April 1972.

The Achievement Anxiety Test (AAT) was administered to 300 undergraduates. Four groups of 13 subjects each were selected to investigate the relationship of facilitating (AAT+) and debilitating (AAT-) test anxiety and study habits. Subjects with low AAT- scores had more effective study habits and avoided delaying academic tasks. This suggests that test-anxious subjects' (high AAT-) test performance is partially affected by ineffective preexamination behavior.

203A. Wittmaier, Bruce C. Test Anxiety, Mood, and Performance. Journal of Personality and Social Psychology, Vol. 29, No. 5, pages 664-669, May 1974.

Results of an examination given under two levels of anxiety are discussed in their assessment of relationship between trait anxiety, transitory anxiety, mood, and performance.

204A. Young, Filson A., and Brown, Marvin. Effects of Test Anxiety and Testing Conditions on Intelligence Scores of Elementary School Boys and Girls. Psychological Reports, Vol. 32, No. 2, pages 643-649, April 1973.

Two hundred sixty-four fifth graders were divided into high, middle, and low test-anxious groups, and matched on previously obtained IQs. Group intelligence tests were then administered under either relaxed or achievement-oriented conditions. The prediction that low-anxious subjects would perform better under achievement than under relaxed conditions was supported by the results for the boys but not for the girls. Results failed to support predictions that highly anxious subjects would perform better under relaxed conditions or that there would be little difference between the performance of the low- and high-anxious subjects under relaxed conditions. Horner's 1970 concept of fear of success in women is suggested as an explanation for the differences amont the low-anxious subjects. Low-anxious boys improved their performance from relaxed to achievement conditions, while the girls' performance deteriorated.

205A. Zaiden, Lawrence Harvey. The Effects of Test Anxiety and Test Conditions upon Consistency in Cognitive Functioning: A Study of Intra-Test Scatter and Internal Consistency on the WISC Comprehension Subtest. Ph.D. dissertation, Loyola University of Chicago, 1972. (UMI Order No. 72-25,116, 108 pages.)

The present study was designed to investigate the effects of test anxiety and test conditions upon consistency in intelligence test performance. On the basis of previous research, it was assumed that anxiety in test situations, whether predispositional or reactive in nature, interferes with efficient cognitive performance. The sample consisted of 96 fifth graders with average IQs attending public school in a predominantly white, middle-class, suburban region. A standardized questionnaire, the Test Anxiety Scale for Children (TASC), was used to select low-anxious and high-anxious subjects. They were paired on the basis of sex, age, group IQ score, and test anxiety level. One member of each pair was then randomly assigned to a nonstressful treatment condition; the other member to the stressful treatment condition. The intelligence test used was the Comprehension subscale of the Wechsler Intelligence Scale for Children (WISC). The results suggest the need for additional research to further determine the effects of personality variables and situational variables upon intra-individual response consistency in intellectual test performance.

206A. Zohner, Dorin. Environmental Discontinuity, Stress and Sex Effects upon Susceptibility to Social Influence. Journal of Genetic Psychology, Vol. 116, Second Half, pages 211-217, June 1970.

This study was designed to test the effects of two kinds of environmental discontinuity or social influence: (1) that associated with a student entering a new environment, in this case college; and (2) that associated with final examinations. Subjects were 160 students, composed of 20 males and 20 females chosen at random from each of four undergraduate classes. Three types of suggestive instructions were given in order to determine the relative effectiveness of base-line, prestige, and conformity suggestion on suggestibility and their interactions with environmental discontinuity and sex. Prestige suggestion proved to be most effective in enhancing social influence. Conformity and base-line suggestion ranked second and third, respectively, in their effectiveness. The effects of social influence on males were greatest during the freshman year while the stress of examinations had its effects largely on sophomore males. The differential effects of suggestion depended on the effects of type of discontinuity and sex. The female reactions to these variables were not as large nor as clear as those for males.

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Wechsler Intelligence Test for Children, 205A

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APPENDIX

MEASURES OF TEST ANXIETY

Alexander, Sheldon, and Husek, Theodore, R. Anxiety Differential. 1962.

The semantic differential technique was used to develop a measure of transitory anxiety. Though it was first applied to the measurement of bodily harm anxiety, it was soon reexamined as a measure of test anxiety. College students of both sexes were administered the Anxiety Differential just before taking a final exam. The final form, consisting of 18 items, was found to be sensitive to an individual' changes in anxiety, and to intergroup differences in anxiety. It correlated highly with the anxiety scale of the Nowlis-Green adjective checklist, indicating construct validity. Further research is necessary to determine its reliability.

Alexander, Sheldon, and Husek, Theodore R. The Anxiety Differential: Initial Steps in the Development of Measures of Situational Anxiety. Educational and Psychological Measurement, Vol. 22, No. 2, pages 325-348, Summer 1962.

Allen, George J. Effect of Three Conditions of Administration on 'Trait' and 'State' Measures of Anxiety. Journal of Consulting and Clinical Psychology, Vol. 34, No. 3, pages 355-359, June 1970.

Husek, T. R. and Alexander, Sheldon. The Effectiveness of the Anxiety Differential in Examination Stress Situations. Educational and Psychological Measurement, Vol. 23, No. 2, pages 309-318, Summer 1963.

Alpert, Richard. Achievement Anxiety Test 1957.

In an attempt to correlate anxiety and academic achievement, two scales were developed, one to measure the debilitating effects of anxiety, the other to measure the facilitating effects. The two scales were self-administered in one questionnaire, with the items randomly mixed and buffer items added. The debilitating scale correlates very highly with Mandler and Sarason's Test Anxiety Scale, and the facilitating scale significantly adds to its validity in predicting academic achievement. It has proven to be reliable over an eight-month period. Though originally intended to be used with college students, a children's form has been developed.

Allen, George J. Effect of Three Conditions of Administration on "Trait" and "State" Measures of Anxiety. Journal of Consulting and Clinical Psychology, Vol. 34, No. 3, pages 355-359, June 1970.

Alpert, Richard. Anxiety in Academic Achievement Situations: Its Measurement and Relation to Aptitude. Ph. D. dissertation, Stanford University, 1957.

Alpert, Richard, and Haber, Ralph Norman. Anxiety in Academic Achievement Situation Journal of Abnormal and Social Psychology, Vol. 61, No. 2, pages 207-215, 1960.

Carrier, Neil A., and Jewell, Donald O. Efficiency in Measuring the Effect of Anxiety upon Academic Performance. Journal of Educational Psychology, Vol. 57, No. 1, pages 23-26, February 1966.

Dember, William N., and others. Further Validation of the Alpert-Haber Achievement Anxiety Test. Journal of Abnormal and Social Psychology Vol. 65, No. 6, pages 427-428, 1962.

Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York,: Wiley, 1971. Pages 13-14.

Harper, Frank B.W. The Comparative Validity of the Mandler-Sarason Test Anxiety Questionnaire and the Achievement Anxiety Test. Educational and Psychological Measurement, Vol. 34, No. 4, pages 961-966, Winter 1974.

Huck, Schuyler W., and Jacko, Edward J. Effect of Varying the Response Format of the Alpert-Haber Achievement Anxiety Test. Journal of Counseling Psychology, Vol. 21, No. 2, pages 159-163, March 1974.

Jacko, Edward J., and Huck, Schuyler W. The Effect of Varying the Response Format on the Statistical Characteristics of the Alpert-Haber Achievement Anxiety Test. April 1974. 15 pages. ED 093 992.

Milholland, John E. Note on the Further Validation of the Alpert-Haber Achievement Anxiety Test. Journal of Abnormal and Social Psychology, Vol. 69, No. 2, page 236, 1964.

Stanford, Diane, and others. A Children's Form of the Alpert-Haber Achievement Scale. Child Development, Vol. 34, No. 4, pages 1027-1032, December 1963.

Dunn, James A. School Anxiety Questionnaire. 1968.

The School Anxiety Questionnaire is a 5-scale, 105-item multiple-choice questionnaire to measure anxiety concerning evaluation (14 items), failure (13 items), achievement (14 items), tests (13 items), and recitation (6 items). In developing the instrument, 160 items expected to cluster around the five a prior factors were administered to 83 fourth and fifth grade public school children. Student responses were factor analyzed and items that had high communalities and loaded well on single factors were retained. These items plus new items written to parallel the obtained factor structure were administered to a new sample of 56 fourth, fifth, and sixth grade children. Those items with high commualities and strong loadings on single factors were retained and the instrument further refined and reduced to 105 items. Subjects respond on a 5-point Likert scale from "frequently" to "seldom" or "a lot" to "not much". A factor analysis based on the responses fo 321 children yielded the five expected factors which accounted for 54 percent of the common variance. The SAQ is group administered in two parts to children in their classroom with the teacher absent. Instructions and test items are read aloud by a tape recorder in order to minimize the effects of individual differences in reading ability.

Bergan, John R. A Special Scoring Procedure for Minimizing Response Bias on the School Anxiety Questionnaire. Psychology in the Schools, Vol. 5, No. 3, pages 210-216, 1968.

Dunn, James, A. The Investigation of Children's School Anxiety: A Theory Procedure, and Results. 1969. 11 pages. ED 069 698.

Dunn, James A. School Anxiety Questionnaire: Preliminary Results. Proceedings of the Annual Convention of the American Psychological Association, Vol. 5, Pt. 1, pages 155-156, 1970.

Dunn, James A. The School Anxiety Questionnaire: Theory, Instrument, and Summary of Results. September 1970. 35 pages. ED 045 700.

Dunn, James. A. The Theoretical Rationale Underlying the Development of the School Anxiety Questionnaire. Psychology in the Schools, Vol. 5, No. 3, pages 204-210, July 1968.

Emery, John R. Test Anxiety Scale. 1966.

The 18 items of the self-report questionnaire are rated on a five-point scale from "Rarely or Never" to "Almost Always or Always". Each of the statements describes a situation related to test-taking, and the subject indicates those in which he or she feel anxiety. Those students who declare themselves "test anxious" score significantly higher on the 18 items than a random sample of Stanford University students. The reported split-half reliability is .76.

Emery, John Robert. An Evaluation of Standard Versus Individualized Hierarchies in a Desensitization to Reduce Test Anxiety. Ph. D. dissertation, Stanford University, 1966. (UMI Order No. 66-14657, 112 pages.)

Emery, John R., and Krumboltz, John D. Standard Versus Individualized Hierarchies in Desensitization to Reduce Test Anxiety. Journal of Counseling Psychology, Vol. 14, No. 3, pages 204-209, May 1967.

Jones, G. Brian, and others. Improving College Students' Performance Through Group Counseling. Journal of College Student Personnel, Vol. 11, No. 5, pages 373-382, September 1970.

Endler, Norman S., and others. S-R Inventory of Anxiousness. 1962.

The format of this questionnaire separates the stimulus situation from the response. For each of the 11 stimulus situations presented, the subject is asked to score 14 responses on a five-point scale. For example when the stimulus is presented ("You are about to go on a roller coaster."), the subject rates each of 14 responses ("Heart beats faster", "Get an 'uneasy' feeling," etc.) on a five-point scale. This questionnaire has correlated quite highly with other measures of anxiety, and has retained that correlation when restricted to only one stimulus, "You are entering a final examination in a important course."

Chambers, Alma C., and Hopkins, Kenneth D. Anxiety, Physiologically and Psychologically Measured, and Its Consequences on Mental Test Performances. August 1966. 379 pages. ED 010 407.

Endler, Norman S., and others. An S-R Inventory of Anxiousness. Psychological Monographs, Vol. 76, No. 17, Whole No. 536, 1962.

Sherrill, David. A Situational Restriction of the S-R Inventory of Anxiousness: Test Anxiety. Perceptual and Motor Skills, Vol. 30, No. 2, pages 653-654, April 1970.

Jacobs, Paul D., and Munz, David C. Perceived Stress Index. 1968.

This instrument was developed to measure changes in the amount of stress felt by college students at various times. So that they would reflect the vernacular of the college population, the final 15 items were selected for hundreds suggested by students as fitting on a pleasant-unpleasant continuum. Using these 15 items, students are asked to check the one adjective that describes how they "normally feel" (Scale I) or how they feel "at this moment" (Scale II). The Items are equally distributed on a continuum that ranges from "Extremely Terrified" to Thrilled". Because of its ease of administration, this index can quickly be used to assess a change in perceived stress.

Jacobs, Paul D., and Munz, David C. An Index for Measuring Perceived Stress in a College Population. *Journal of Psychology*, Vol. 70, No. 1, pages 9-15, September 1968.

Jacobs, Paul D., and Thornton, Jerry W. Scale Sensitivity of the Perceived Stress Index. *Perceptual and Motor Skills*, Vol. 30, No. 3, page 944, June 1970.

Liebert, Robert M., and Morris, Larry W. *Pre-Examination Questionnaire*. 1967.

To study the distinction between the "emotionality" and "worry" components of test anxiety, 10 items were selected from Nandler and Sarason's Test Anxiety Questionnaire. Five reflected emotional responses to the testing situation, and the other five reflected a cognitive worry about the testing situation. The two subscales are scored separately.

Liebert, Robert M., and Morris, Larry W. Cognitive and Emotional Components of Test Anxiety: A Distinction and Some Initial Data. *Psychological Reports*, Vol. 20, pages 975-978, 1967.

Morris, Larry W., and Liebert, Robert M. Relationship of Cognitive and Emotional Components of Test Anxiety to Physiological Arousal and Academic Performance. *Journal of Consulting and Clinical Psychology*, Vol. 35, pages 332-337, December 1970.

Spiegler, M.D., and others. Cognitive and Emotional Components of Test Anxiety: Temporal Factors. *Psychological Reports*, Vol. 22, pages 451-456, 1968.

Mandler, George, and Sarason, Seymour B. *Test Anxiety Questionnaire*. 1952.

One of the earliest and most commonly used questionnaires, it centers around three types of testing situations: group intelligence tests, individual intelligence tests, and course examinations. It was originally designed for use with college students, but a high school version was later developed by Mandler and Cowen (1958). The original research indicated a split-half reliability of .91.

Allen, George J. Effect of Three Conditions of Administration of "Trait" and "State" Measures of Anxiety. *Journal of Consulting and Clinical Psychology*, Vol. 34, No. 3, pages 355-359, June 1970.

Cowen, Judith Eve. *Test Anxiety in High School Students and Its Relationship to Performance on Group Tests*. Ph. D. dissertation, Harvard University, 1957.

Entwisle, Doris R., and Greenberger, Ellen. *A Survey of Cognitive Style in Maryland Ninth Graders: II. Test Anxiety.* Report Number 68. May 1970. 45 pages. ED 042 181.

Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement, New York: Wiley, 1971. Pages 12-13.

Gorsuch, Richard L. The General Factor in the Test Anxiety Questionnaire. Psychological Reports, Vol. 19, No. 1, page 308, August 1966.

Harper, Frank B.W. The Comparative Validity of the Mandler-Sarason Test Anxiety Questionnaire and the Achievement Anxiety Test. Educational and Psychological Measurement, Vol. 34, No. 4, pages 961-966, Winter 1974.

Harper, Frank B.W. Specific Anxiety Theory and the Mandler-Sarason Test Anxiety Questionnaire. Educational and Psychological Measurement, Vol. 31, No. 4, pages 1011-1014, Winter 1971.

Kissel, Stanley, and Littig, Lawrence W. Test Anxiety and Skin Conductance. Journal of Abnormal and Social Psychology, Vol. 65, No. 4, pages 276-278, 1962.

Lavit, Ronald J. A Validational Study of the Test Anxiety Questionnaire with College Students. Psychology, Vol. 8, No. 1, pages 2-3, February 1971.

Mandler, George, and Cowen, Judith E. Test Anxiety Questionnaires. Journal of Consulting Psychology, Vol. 22, No. 3, pages 228-229, 1958.

Mandler, George, and Sarason, Seymour B. A Study of Anxiety and Learning. Journal of Abnormal and Social Psychology, Vol. 47, Pages 166-173, 1952.

Mandler, G., and others. Thematic Apperception Test: Indices of Anxiety in Relation to Test Anxiety. Educational and Psychological Measurement, Vol. 17, pages 466-474, 1957.

Martin, B., and McGowan, B. Some Evidence on the Validity of the Sarason Test Anxiety Scale. Journal of Consulting Psychology, Vol. 19, No. 6, page 468, 1955.

Raphelson, Alfred C. The Relationship among Imaginative, Direct Verbal, and Physiological Measures of Anxiety in an Achievement Situation. Journal of Abnormal and Social Psychology, Vol. 54, No. 1, pages 13-18, January 1957.

Reiter, Henry, Relationships Among Four Measures of Anxiety. Psychological Reports, Vol. 28, No. 3, pages 761-762, June 1971.

Sarason, Seymour B., and Gordon, Edward M. The Test Anxiety Questionnaire: Scoring Norms. Journal of Abnormal and Social Psychology, Vol. 48, No. 3, pages 447-448, 1953.

Sarason, Seymour B., and Mandler, George. Some Correlates of Test Anxiety. Journal of Abnormal and Social Psychology, Vol. 47, pages 810-817, 1952.

Sassenrath, J.M. A Factor Analysis of Rating-Scale Items on the Test Anxiety Questionnaire. Journal of Consulting Psychology, Vol. 28, pages 371-377, 1964.

Sassenrath, Julius M., and others. Relating Factors from Anxiety Scales Between Two Samples. Psychological Reports, Vol. 17, No. 2, pages 407-416, October 1965.

Scott, Steven B., and Kessler, Marc. An Attempt to Relate Test Anxiety and Palmer Sweat Index. Psychonomic Science, Vol. 15, No. 2, pages 90-91, 1969.

Smith Charles P. The Influence on Test Anxiety Scores of Stressful Versus Neutral Conditions of Test Administration. Educational and Psychological Measurement, Vol. 25, No. 1, pages 135-141, Spring 1965.

Sperber, Zanwil. The Test Anxiety Questionnaire: Scoring Norms for a Non-College Population. Journal of Abnormal and Social Psychology, Vol. 58, No. 1, pages 129-131, January 1959.

Suinn, Richard M. Social Desirability and the Taylor Manifest Anxiety Scale, the General Anxiety and Test Anxiety Scales. Educational and Psychological Measurement, Vol. 27, No. 4, Pt. 2, pages 1119-1120, Winter 1967.

Osterhouse, Robert A. Inventory of Test Anxiety. 1969.

Originally developed to compare the effects of desensitization and study skills training on test anxiety, this instrument is based on Morris and Liebert's theory of two factors of test anxiety: worry and emotionality. Worry connotes the cognitive concerns of students in the testing situation; emotionality refers to their physiological expressions of stress. Ten items for each scale were composed by the author or selected earlier questionnaires by Liebert and Morris, Alpert and Haber, and Sarason. The split-half reliability coefficient is .92, and a test-retest reliability of .68 for the emotionality scale and .72 for the worry scale have been reported.

Osipow, Samuel H., and Kreinbring, Inese. Temporal Stability of an Inventory to Measure Test Anxiety. Journal of Counseling Psychology, Vol. 18, No. 2, pages 152-154, March 1971.

Osterhouse, Robert Alan. A Comparison of Desensitization and Study Skills Training for the Treatment of Two Kinds of Test-Anxious Students. Ph. D. dissertation, Ohio State University, 1969. (UMI Order No. 70-14081, 194 pages.)

Osterhouse, R.A. Desensitization and Study-Skills Training as Treatment for Two Types of Test-Anxious Students. Journal of Counseling Psychology, Vol. 19, pages 301-307, 1972.

Prochaska, James O. Final Exam Anxiety Index. 1969.

This index is based on Wolpe's Fear Thermometer, the subjects being asked to rate their own feelings of fear on a 100-point scale. For use in the measurement of the effect of implosive therapy on test anxious college students, subjects were asked to rate the anxiety they felt during final exams after therapy compared to previous final exam experiences. The scale used 0 to indicate no change in anxiety, +50 to indicate greatly increased anxiety, and -50 to indicate greatly decreased anxiety.

Prochaska, James Otto. Symptom and Dynamic Cues in the Implosive Treatment of Test Anxiety. Ph. D. dissertation, Wayne State University, 1969. (UMI Order No. 71-29976, 96 pages.)

Prochaska, James O. Symptom and Dynamic Cues in the Implosive Treatment of Test Anxiety. Journal of Abnormal Psychology, Vol. 77, No. 2, pages 133-142, April 1971.

Sarason, Irwin G. Autobiolgraphical Survey. 1958.

This survey consists of 180 true-false statements distributed among six scales: Test Anxiety, General Anxiety, Lack of Protection, Defensiveness, Hostility, and Need for Achievement. The Test Anxiety Scale consists of 21 statements, mostly adapted from Mandler and Sarason's Test Anxiety Questionnaire, such as, "While taking an important examination, I perspire a great deal". The Test Anxiety Scale does not need to be used in conjunction with the other five scales.

Allen, George J. Effect of Three Conditions of Administration on "Trait" and "State" Measures of Anxiety. Journal of Consulting and Clincial Psychology, Vol. 34, No. 3, pages 355-359, June 1970.

Sarason, Irwin G. Characteristics of Three Measures of Anxiety. Journal of Clinical Psychology, Vol. 17, No. 2, pages 195-197, 1961.

Sarason, I. G. Intellectual and Personality Correlates of Test Anxiety. Journal of Abnormal and Social Psychology, Vol. 59, No. 2, pages 272-275, September 1959.

Sarason, Irwin G. Interrelationships Among Individual Difference Variables, Behavior in Psychotheraphy, and Verbal Conditioning. Journal of Abnormal and Social Psychology, Vol. 56, No. 3, pages 339-344, May 1958.

Suinn, Richard M. Psychometric Characteristics of the Test Anxiety and General Anxiety Scales: Social Desirability and Reliability Data. Journal of Clinical Psychology, Vol. 25, No. 1, pages 64-65, January 1969.

Walter, Dean, and others. Anxiety and the Intellectual Performance of High School Students. Child Development, Vol. 35, No. 3, pages 917-926, September 1964.

Sarason, Irwin G. Test Anxiety Scale. 1968.

This instrument is intended for use with college and high school students and has been used to make comparisons with measures of academic achievement. The instrument consists of 37 true-false items. Sample items are: "I would be willing to stake my continuance in school on the outcome of a group intelligence test which is known to be reliable"; "I get to feel very panicky when I have to take a surprise exam"; "Even though it serves no useful purpose, I spend a lot of time thinking of ways to avoid taking tests"; "I sometimes feel that my heart is beating very fast during important tests.". The scale is self-administered.

Chambers, Alma, C., and Hopkins, Kenneth D. Anxiety, Physiologically and Psychologically Measured, and its Consequences on Mental Test Performance. August 1966, 379 pages. ED 010 407.

Sarason, Irwin G., and Ganzer, Victor J. Anxiety, Reinforcement, and Experimental Instructions in a Free Verbalization Situation. Journal of Abnormal and Social Psychology, Vol. 65, No. 5, pages 300-307, 1962.

Sarason, Irwin G., and others. Test Anxiety and the Observation of Models. Journal of Personality, Vol. 36, No. 3, pages 493-511, 1968.

Sarason, Seymour B., and others. Test Anxiety Scale for Children (TASC). 1960.

The TASC consists of 30 questions given orally to children by an examiner. These questions were designed to produce a test in which: (1) a "yes" answer reflects a behavior experienced as unpleasant; (2) anticipation of dangerous or painful consequences is incorporated into each question: (3) bodily reactions to testing situations are included in a number of items; and (4) a variety of testing situations is represented. High positive correlations with teachers' ratings of anxiety have been demonstrated, and strong positive correlations were also consistently obtained when TASC scores were compared to the General Anxiety Scale for Children. An expanded version (Feld and Lewis, 1969) is also available.

Bayuk, Robert J., Jr., and Proger, Barton B. Additional Evidence of the Multidimensionality of the Test Anxiety Scale for Children. February 1971. 3 pages. ED 046 972.

Cox, F. N., and Leaper, Patricia M. General and Test Anxiety Scales for Children. Australian Journal of Psychology, Vol. 11, pages 70-80, 1959.

Dunn, J.A. Factor Structure of the Test Anxiety Scale for Children. Journal of Consulting Psychology, Vol. 28, page 92, 1964.

Dunn, J.A. Stability of the Factor Structure of the Test Anxiety Scale for Children Across Age and Sex Groups. Journal of Consulting Psychology, Vol. 29, page 187, 1965.

Feld, Sheila C., and Lewis, Judith. The Assessment of Achievement Anxieties in Children. In Smith, Charles P. (Ed.) Achievement-Related Motives in Children. New York: Russell Sage Foundation, 1969.

Feld, Sheila and Lewis, Judith. The Assessment of Achievement Anxieties in Children: How Important Is Response Set and Multidimensionality in the Test Anxiety Scale for Children? October 1967. 81 pages. ED 025 313.

Feld, Sheila, and Lewis, Judith. Further Evidence on the Stability of the Factor Structure of the Test Anxiety Scale for Children. February 1967. 35 pages. ED 023 485.

Feld, Sheila, and Lewis, Judith. Further Evidence on the Stability of the Test Anxiety Scale for Children. Journal of Consulting Psychology, Vol. 31, No. 4, page 434, 1967.

Fisher, James R., and others. Effects of Sex and Grade Level on Socres of the Test Anxiety Scale for Children and General Anxiety Scale for Children. Catalog of Selected Documents in Psychology, Vol. 3, page 63, Spring 1973. (MS. No. 378, 13 pages.)

Forhertz, John Elbert. An Investigation of Test Anxiety as Measured by the TASC in Content Areas Ranked Difficult and Easy with Fourth and Sixth Grade Students. Ph. D. dissertation, Southern Illinois University, 1970. (UMI Order No. 71-09992, 124 pages.)

Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York: Wiley, 1971. pages 12-13.

Kaneda, Tatsuko. Introduction of the Test Anxiety Scale for Children to Japanese Subjects. Japanese Psychological Research, Vol. 13, No. 2, pages 97-102, July 1971.

Loughlin, Leo J., and others. An Investigation of Sex Differences by Intelligence, Subject-Matter Areas, Grade, and Achievement Level on Three Anxiety Scales. Journal of Genetic Psychology, Vol. 106, Second Half, pages 207-215, 1965.

Nighswander, James K., and Beggs, Donald L. A Study of the Relationships Between Test Order, Physiological Arousal, and Intelligence and Achievement Test Performance. February 1971. 20 pages. ED 046 983.

Nighswander, James K., and others. A Validity Study of Self-Report and Physiological Measures of Test Anxiety. March 1970. 34 pages. ED 039 564.

Rhine, W. Ray, and Spaner, Steven D. A Comparison of the Factor Structure of the Test Anxiety Scale for Children among Lower- and Middle-Class Children. Developmental Psychology, Vol. 9, No. 3, pages 421-423, November 1973.

Sarason, Seymour B., and others. Anxiety in Elementary School Children: A Report of Research. New York: Wiley, 1960. Pages 84-95.

Sarason, Seymour B., and others. A Test Anxiety Scale for Children. Child Development, Vol. 29, No. 1, pages 105-113, March 1958.

Spielberger, Charles D., and others. State-Trait Anxiety Inventory (STAI). 1970.

The State-Trait Anxiety Inventory (STAI) is comprised of separate self-report scales for measuring two distinct anxiety concepts: state anxiety (A-State) and trait anxiety (A-Trait). State anxiety is conceptualized as a transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system activity. A-States may vary in intensity and fluctuate over time. Trait anxiety refers to relatively stable individual differences in anxiety proneness, that is, to differences between people in the tendency to respond to situations perceived as threatening with elevations in A-State intensity. The STAI A-Trait scale consists of 20 statements that ask people to describe how they generally feel. The A-State scale also consists of 20 statements, but the instructions require subjects to indicate how they feel at a particular momement in time. A children's form of the STAI has also been developed.

Allen, George J. Effect of Three Conditions of Administration of 'Trait' and 'State' Measures of Anxiety. Journal of Consulting and Clinical Psychology, Vol. 34, No. 3, pages 355-359, June 1970.

Forrest, Marvin, and Kreth, Jerome A. Psychometric and Physiological Indices of Anxiety. Journal of Clinical Psychology, Vol. 27, No. 1, pages 40-42, January 1971.

Gaudry, Eric, and Spielberger, Charles D. Anxiety and Educational Achievement. New York: Wiley, 1971, pages 14-15.

Hedberg, Allan G. Test Review: State-Trait Anxiety Inventory. Professional Psychology, Vol. 3, No. 4, pages 389-390, 1972.

Joesting, Joan. Test-Retest Reliabilities of State-Trait Anxiety Inventory in an Academic Setting. Psychological Reports, Vol. 37, No. 1, page 270, August 1975.

Knox, Wilma J., and Grippaldi, Ricardo. High Levels of State or Trait Anxiety and Performance on Selected Verbal WAIS Subtests. Psychological Reports, Vol. 27, No. 2, pages 375-379, October 1970.

Mote, Thomas A., Jr., and others. Comparability of the Spanish and English Editions of the Spielberger State-Trait Anxiety Inventory. Journal of Cross-Cultural Psychology, Vol. 2, No. 2, pages 205-206, June 1971.

Nixon, G.F., and Steffeck, J.C. Reliability of the State-Trait Anxiety Inventory. Psychological Reports, Vol. 40, No. 2, pages 357-358, April 1977.

Smith, R.C., and Lay, C.D. State and Trait Anxiety: Annotated Bibliography. Psychological Reports, Vol. 34, No. 2, pages 519-594, 1974.

Spielberger, Charles D. STAI Manual, for the State-Trait Anxiety Inventory ("Self-Evaluation Questionnaire"). Palo Alto, Calif.: Consulting Psychologists Press, Inc., 1970.

Spielberger, Charles D. Theory and Research on Anxiety. In Spielberger, Charles D., Ed. Anxiety and Behavior. New York: Academic Press, 1966, pages 3-20.

Tracy, D.B., and others. Induced Response Bias on the State-Trait Anxiety Inventory. 11 pages. ED 111 864.

Suinn, Richard M. Suinn Test Anxiety Behavior Scale (STABS). 1969.

Intended as a screening measure for test anxiety, the STABS consists of 50 statements describing various testing situations in an academic setting. The subject is then asked to indicate how frightened he or she is in each situation. The test was standardized on college students, and has a test-retest reliability coefficient of .78 after four weeks. Statistically significant correlations were found with other anxiety scales and grade point average.

Suinn, Richard M. The STABS, A Measure of Test Anxiety for Behavior Therapy: Normative Data. *Behaviour Research and Therapy*, Vol. 7, No. 3, pages 335-339, 1969.

Suinn Test Anxiety Behavior Scale: Information Brief. Ft. Collins, Colorado: Rocky Mountain Behavioral Science Institute, Inc., 1972.

Suinn Test Anxiety Behavior Scale (STABS): Information for Users. Ft. Collins, Colorado: Rocky Mountain Behavioral Science Institute, Inc., 1971.

Wallach, Michael A., and Kogan, Nathan. *What I Am Like*. 1965.

An 88-item self-descriptive inventory was developed, representing six scales: anxiety, test anxiety, defensiveness, test defensiveness, social extraversion fillers, and general fillers. The test anxiety scale was adapted from the second-person interrogative form (Are you afraid of school tests?) to the first-person declarative form (I am afraid of school tests.). The reported reliability coefficient for the test anxiety scale is .87.

Shriberg, Laurence D. Descriptive Statistics for Two Children's Social Desirability Scales, General and Test Anxiety, and Locus of Control on Elementary School Children. *Psychological Reports*, Vol. 34, No. 3, Pt. 1, pages 863-870, June 1974.

Wallach, Michael A., and Kogan Nathan. *Modes of Thinking in Young Children: A Study of the Creativity-Intelligence Distinction*. New York: Holt, Rinehart, and Winston. 1965. Pages 207-211.

Zuckerman, Marvin. *Multiple Affect Adjective Check List*. 1965.

The Multiple Affect Adjective Check List (MAACL) was designed to fill the need for a self-administered test which would provide measures of three clinically relevant negative affects: anxiety, depression, and hostility. The items for the anxiety scale are the same in the earlier Affect Adjective Check List and the MAACL. The subject is presented with a list of adjectives and asked to mark those that describe how he or she feels today (Today Form) or generally (In General Form). Normative data are presented in the test manual. The test reliability and validity have been widely studied, and are reported in the articles listed below.

Bloom, Paul M., and Brady, John Paul. An Ipsative Validation of the Multiple Affect Adjective. Check List. *Journal of Clinical Psychology*, Vol. 24, pages 45-46, January 1968.

Chambers, Alma, C., and Hopkins, Kenneth D. *Anxiety, Physiologically and Psychologically Measured, and Its Consequences on Mental Test Performance*. August 1966. 379 pages. ED 010 407.

Fogel, M.L., and others. A Validational Study of Two Affect Check Lists. *Psychological Reports*, Vol. 19, pages 299-307, 1966.

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Physiological Measures of Test Anxiety.

Focusing on autonomic responses to the testing situation, a variety of physiological measures have been used to study test anxiety. These include heart rate, galvanic skin response, blood pressure, body temperature, and the Palmar Sweat Index. Few studies have found these measures to correlate highly with self-report measures of test anxiety, bringing the researcher to question the validity of one or the other type of measure. Though they do not have the potential fakability of self-report questionnaires, physiological measures are generally more difficult to administer, especially in large groups.

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